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FINAL PRELIMINARY MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)
INVESTIGATION REPORT FOR RED AND BLUE BEACHES VIEQUES NAVAL TRAINING
RANGE VIEQUES ISLAND PUERTO RICO
07/01/2003
NAVFAC ATLANTIC

**Final
Preliminary Munitions and
Explosives of Concern (MEC)
Investigation Report for
Red and Blue Beaches,
Vieques Naval Training Range
Vieques Island, Puerto Rico**



Prepared for
**Commander, U.S. Atlantic Fleet
U.S. Navy**

Prepared by
**Naval Facilities Engineering Command
Atlantic Division
1510 Gilbert Street
Norfolk, VA 23451-2699**

July 2003

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List of Acronyms

ALB	Amphibious landing beach
AFWTF	Atlantic Fleet Weapons Training Facility
ARS	Archive Records Search
ATG	Air-to-ground
bls	Below land surface
CAS	Close air support
CLEAN	Comprehensive Long-Term Environmental Action Navy
cm	Centimeter
CSAR	Combat Search and Rescue
DoD	Department of Defense
DOI	Department of the Interior
EMA	Eastern Maneuver Area
EOD	Explosive Ordnance Disposal
ft	Feet
FWS	U.S. Fish & Wildlife Service
GPS	Global Positioning System
LANTDIV	Atlantic Division
LIA	Live Impact Area
MEC	Munitions and explosives of concern
m	Meter
mm	Millimeter
MOMAT	Mobility matting
msl	Mean sea level
mV	Millivolt
NASD	Naval Ammunition Support Detachment
NAVFACENGCOM	Naval Facilities Engineering Command
NFDAI	No Further DoD Action is Indicated
NGFS	Naval gunfire support
NOSSA	Naval Ordnance Safety and Security Activity
NSFS	Naval surface fire support
NSRR	U.S. Naval Station Roosevelt Roads
SACEX	Supporting Arms Coordination Exercise
SIA	Surface Impact Area
SOW	Statement of Work
SWMU	Solid Waste Management Unit
UXO	Unexploded ordnance

SECTION 1

Introduction

This report, presents the findings of the Preliminary Munitions and Explosives of Concern (MEC) investigation of the Red and Blue Beach areas located at the Vieques Naval Training Range in eastern Vieques, Puerto Rico. This preliminary MEC investigation is conducted in association with the ongoing property transfer of the Vieques Naval Training Range (VNTR) from the U.S. Navy to the Department of the Interior (DOI). The purpose of the investigation is to confirm the archive records search findings that live fire has not been used historically at Red and Blue Beaches by conducting an evaluation on whether or not MEC is currently present at the beach areas.

An Archive Records Search (ARS) was completed in conjunction with the Draft VNTR Preliminary Range Assessment (PRA) report (CH2M HILL, April 2003) and has shown that both Red and Blue Beaches were formerly utilized for military training activities. Information from the ARS also indicated that only blank ammunition was used on these beaches during training exercises (Tippetts, et al., 1979). Although records indicate that no live fire was used in these areas, a preliminary MEC investigation was completed as a precautionary measure to ensure that the Red and Blue Beach areas can be accessed by the public. Prior to 2000 the public had access to the beach for recreational use.

1.1 Background

Red and Blue Beaches are located within the Eastern Maneuver Area (EMA) of the VNTR. The EMA, encompassing 11,070 acres of the VNTR, was established in 1947 and provided maneuvering areas and ranges for the training of Marine amphibious units and battalion landing teams in exercises that included amphibious landings, small arms fire, artillery and tank fire, shore fire control, and combat engineering tasks. The heaviest training events occurred from the mid-1950s until the early 1960s (Tippetts, et al, 1979).

Marine forces simulated amphibious assault operations over suitable beachheads that included Blue, Green, Purple, Red, and Yellow beaches. These simulated assaults involved pre-assault operations, ship-to-shore movement, assault, consolidation, and withdrawal. Battalion teams would spend on average of three weeks operating in the EMA, and the exercise would involve two to four amphibious landings on Red, Blue, and Purple Beaches that could last 3 to 5 days. While amphibious assaults were conducted with blank ammunition, Marine forces would conduct live firing on ranges in the EMA, located approximately three miles north of the two beach areas. The live fire exercises would typically last for 8 to 11 days with weapons including pistols, rifles, machine guns, grenades, tanks, artillery, recoilless rifles, and mortars. Naval surface fire support (NSFS) and close air support was executed in conjunction with these exercises at the VNTR including the surface impact area (SIA) and the live impact area (LIA). The EMA accommodated an entire Marine amphibious unit (1,200 to 1,500 marines) or a battalion landing team (1,200 to 1,500 marines) (Department of The Navy, 1979).

Red and Blue Beaches were open to the public for a several years until access was restricted in 1999. The open beach areas and beach access trails were investigated to confirm records that indicate no live fire was used here and to confirm that no MEC is present at the beaches from historical Marine training activities. This information will be evaluated to consider whether these two beach areas can be re-opened to the public.

On May 1, 2003, the U.S. Navy's training exercises on the eastern end of Vieques are scheduled to cease as naval and other operations at the facility end. Public Law 107-117, Title X, Sec. 1049, provides the Secretary of the Navy authority to close the VNTR. On January 10, 2003, the Secretary of the Navy certified to the President and Congress that an alternative training facility or facilities that provide equivalent or superior training exist and are available, thereby confirming that the Navy will cease operations at the VNTR.

Following termination of training operations on Vieques, the VNTR will be transferred to the jurisdiction of the Secretary of the Interior. Interior would administer the LIA, a 900-acre area for targeting by live ordnance in training by the Navy and Marine Corps, as a "Wilderness Area" with no public access. The remaining 13,514 acres of the VNTR would be administered by the Interior as a Wildlife Refuge.

A comprehensive summary of the history and background of military operations on the VNTR is currently being developed in the PRA report for the Facility. The PRA provides range utilization records, quantities of ordnance and dates of use, and descriptions of the facilities including Red and Blue Beaches, the EMA, the LIA, and the SIA. The PRA report also includes a detailed ARS for the entire VNTR that supports information presented in this report.

1.2 Purpose and Scope

The specific objectives of the Preliminary MEC Site Investigation for Red and Blue Beaches were to:

1. Perform a visual inspection and 100 percent geophysical survey of open beach areas and trails leading to the beaches to confirm that no live fire was used at these locations as historical records indicate and to evaluate whether the accessible areas of these two beaches are currently contaminated with MEC
2. Propose further action upon reviewing the data gathered from the field, if warranted

This report presents the findings from the field investigation completed during December 2002, as well as any previous investigations conducted at the Red and Blue Beaches. In addition, recommendations are provided based upon the findings of the preliminary MEC site investigation

The MEC investigation was conducted along the open beach areas and associated beach access roads that encompass approximately 20 acres (10 acres at Red Beach and 10 acres at Blue Beach) as described in the *Final Preliminary OE/MEC Investigation Work Plan for Red Beach and Blue Beach* (CH2M HILL, November 2002). The MEC survey consisted of a visual sweep of the area, and a surface clearance of any identified metal scrap and MEC, followed by a geophysical survey of the area, and an intrusive investigation of anomalies identified by the geophysical survey.

The site-specific Preliminary OE/MEC Work Plan developed for this project provided the framework and basic guidance for the performance of the MEC site investigations in an effort to identify actions needed to allow for the safe and effective use of the site. The planned land use for the Red and Blue Beaches is as a wildlife refuge to be managed by the DOI as discussed in Section 1.2. The required UXO clearance depth for land designated as a wildlife refuge is 1 foot (ft) below land surface (bls). This MEC investigation was executed in accordance with OPNAVINST 8020.14, Department of the Navy Explosives Safety Policy, NAVSEA OP 5 Volume 1, Ammunition and Explosives Ashore, U.S. Army Engineering and Support Center, Huntsville IGD 00-003, Basic Safety Concepts and Considerations for Ordnance and Explosive Operations.

1.3 Project Team

The field team was comprised of LANTDIV and subcontractors including CH2M HILL, NAEVA (geophysical services), and USA Environmental, Inc. (UXO services). Figure 1-1 presents the project field communication plan for the Preliminary Red and Blue Beach MEC investigation, including representatives from the Naval Ordnance Safety and Security Activity (NOSSA), U.S. Naval Station Roosevelt Roads (NSRR), and the Navy Explosive Ordnance Disposal (EOD) mobile units from the AFWTF command at NSRR.

Site photographs are included in Appendix A. Appendix B contains the after-action report prepared by the MEC subcontractor, USA Environmental, Inc. Appendix C contains the report prepared by the geophysical subcontractor, NAEVA Geophysics. Appendix D contains the Addendum to Report for Red and Blue Beach Investigation, along with Attachments A, B, C, D and E.

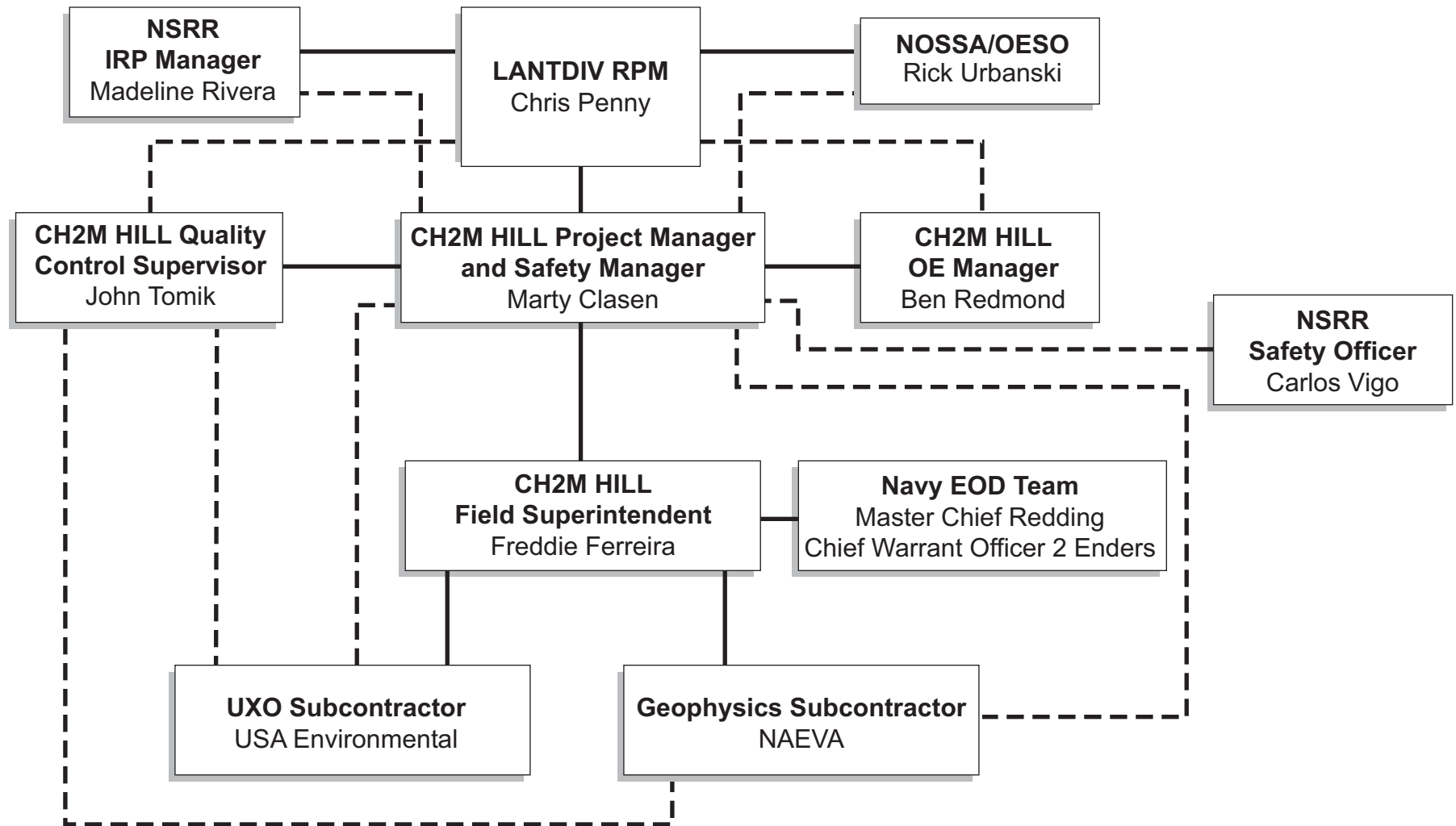


FIGURE 1-1
Red Beach/Blue Beach UXO
Project Field Communication Plan



SECTION 2

Site Description and History

2.1 Location

Vieques Island has a land area of approximately 33,000 acres, and is located in the Caribbean Sea approximately 7 miles southeast of the eastern coast of the island of Puerto Rico (Figure 2-1). The Vieques Naval Training Range is located on the eastern one-third of the island. For the purposes of this Draft MEC Investigation Report, the Training Range includes the Surface Impact Area (SIA), the LIA, and the Eastern Conservation Area (collectively comprised of 3,600 acres) and the adjacent and wholly contiguous EMA, comprised of 11,000 acres. These areas are under the command of NSRR. Figure 2-2 shows the locations of Red Beach and Blue Beach, both of which are located within the EMA on the southern coast of Vieques Island.

2.2 Physical Description

Red Beach is located on the southern coast of the EMA at Bahia Corcho. The beach center is located at latitude 18-06' 24"N and longitude 65-24'56"W. This beach is approximately 250 ft long and varies from 3 to 25 ft wide. Red Beach has fine white sand with good adjacent access roads. Red Beach is separated into two distinct beach areas, Red Beach East and Red Beach West, by a rocky point. As shown in Figure 2-3, the total area of Red Beach is approximately 8.72 acres. This includes 3.80 acres on Red Beach West and 4.92 acres on Red Beach East.

Blue Beach is located on the southern coast of the EMA at Bahia de la Chiva just north and west of Punta Conejo. The center of the beach is located at latitude 18-06'44"N and longitude 65-23' 07"W. The open beach area and numerous access roads that lead to the beach comprise a beachhead less than 100 feet wide for most of its length. The open beach area at Blue Beach extends approximately 1 mile west from a point 1,200 feet north of Punta Conejo. This beach is the primary range amphibious landing beach (ALB). Blue Beach can also be separated into two distinct beach areas, Blue Beach East and Blue Beach West. As shown in Figure 2-4, the total area of Blue Beach is approximately 9.10 acres; this includes 8.24 acres on Blue Beach West and 0.86 acres on Blue Beach East.

2.2.1 Structures, Roads, and Other Site Improvements

The two beach sites are accessed by a series of unfinished dirt roads that run south from the Camp Garcia area. A series of seven tiki huts runs along the northern extent of the shoreline of Blue Beach, and seven tiki huts are located in the Red Beach East area. In addition, the Navy has constructed two structures and a pier on the eastern side of Red Beach.

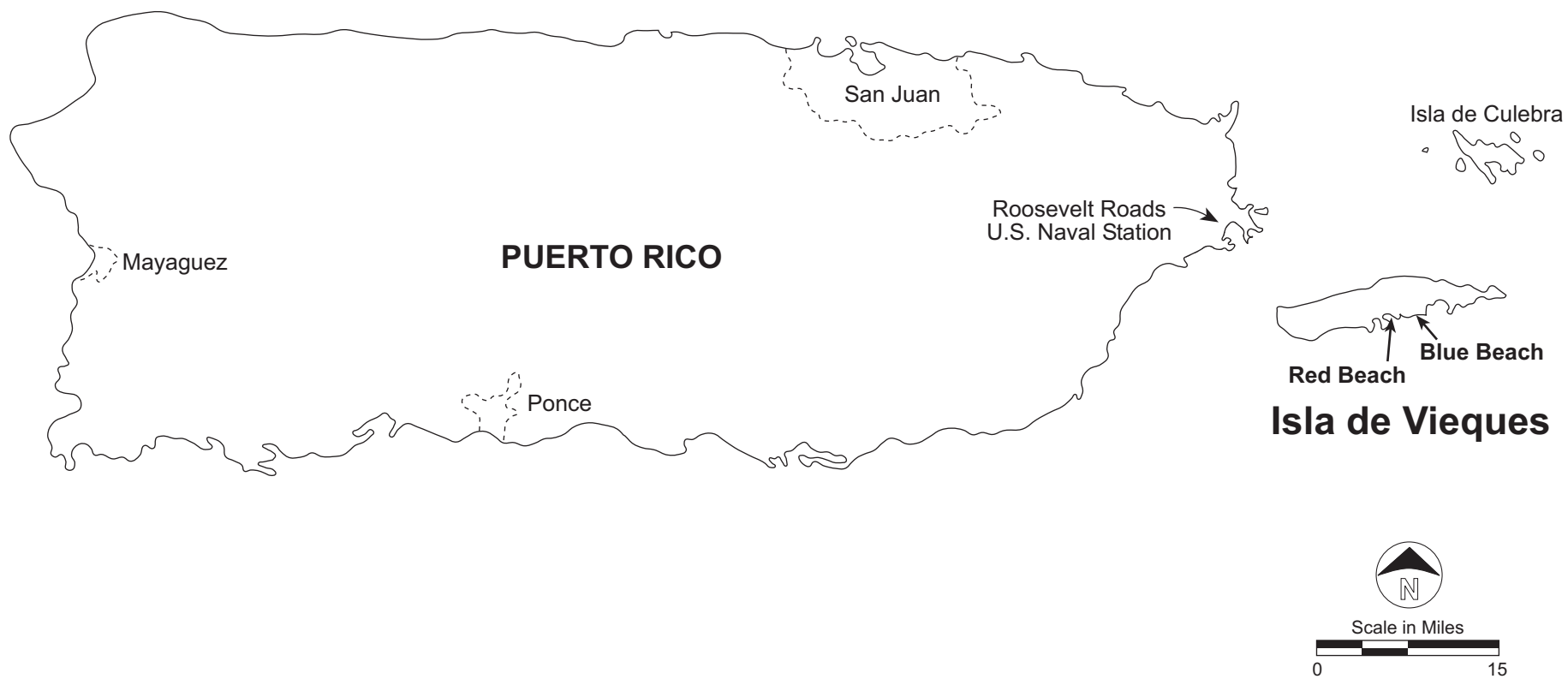
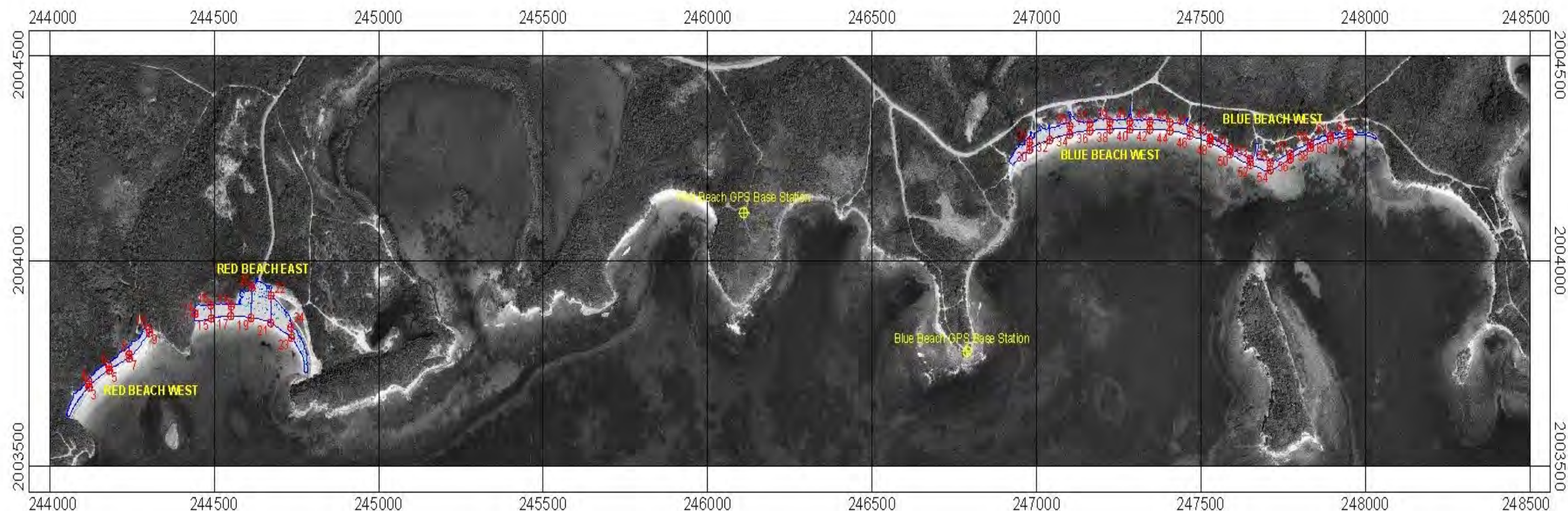
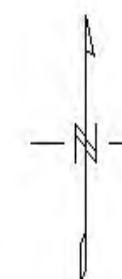
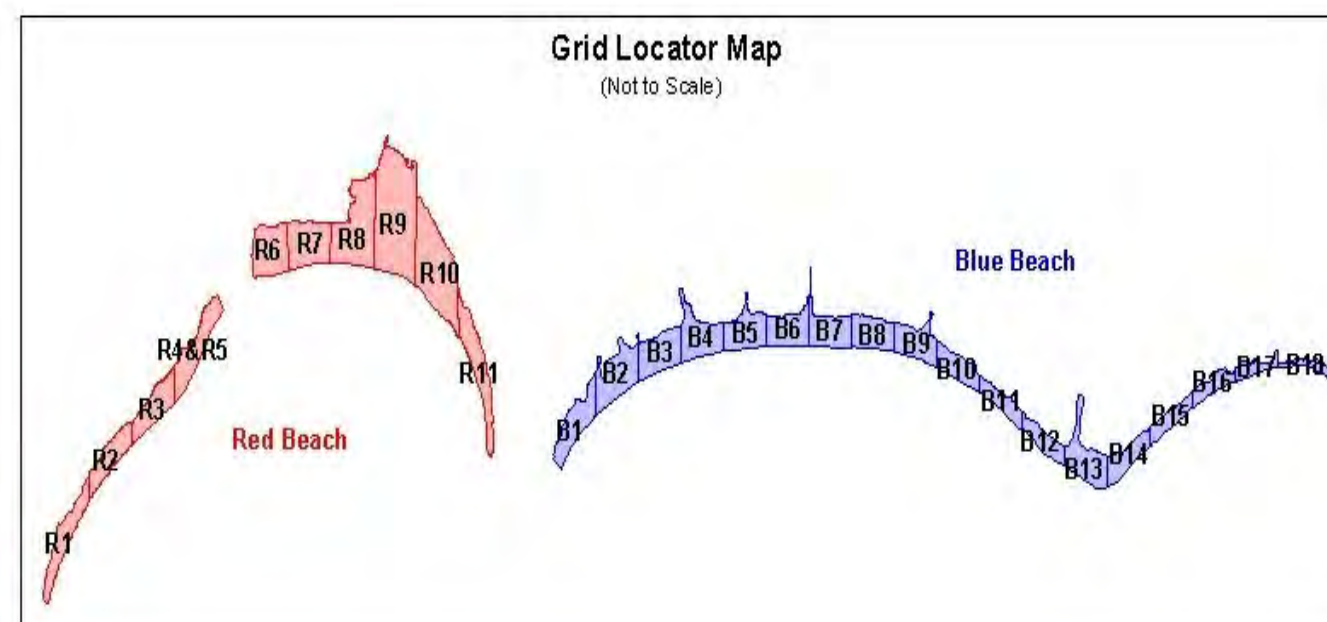


FIGURE 2-1
Site Location Map
Vieques Island, Puerto Rico



Legend

- Area of Investigation
- 14 ⊕ Stake Location
- GPS Base Station



Scale 1:12500

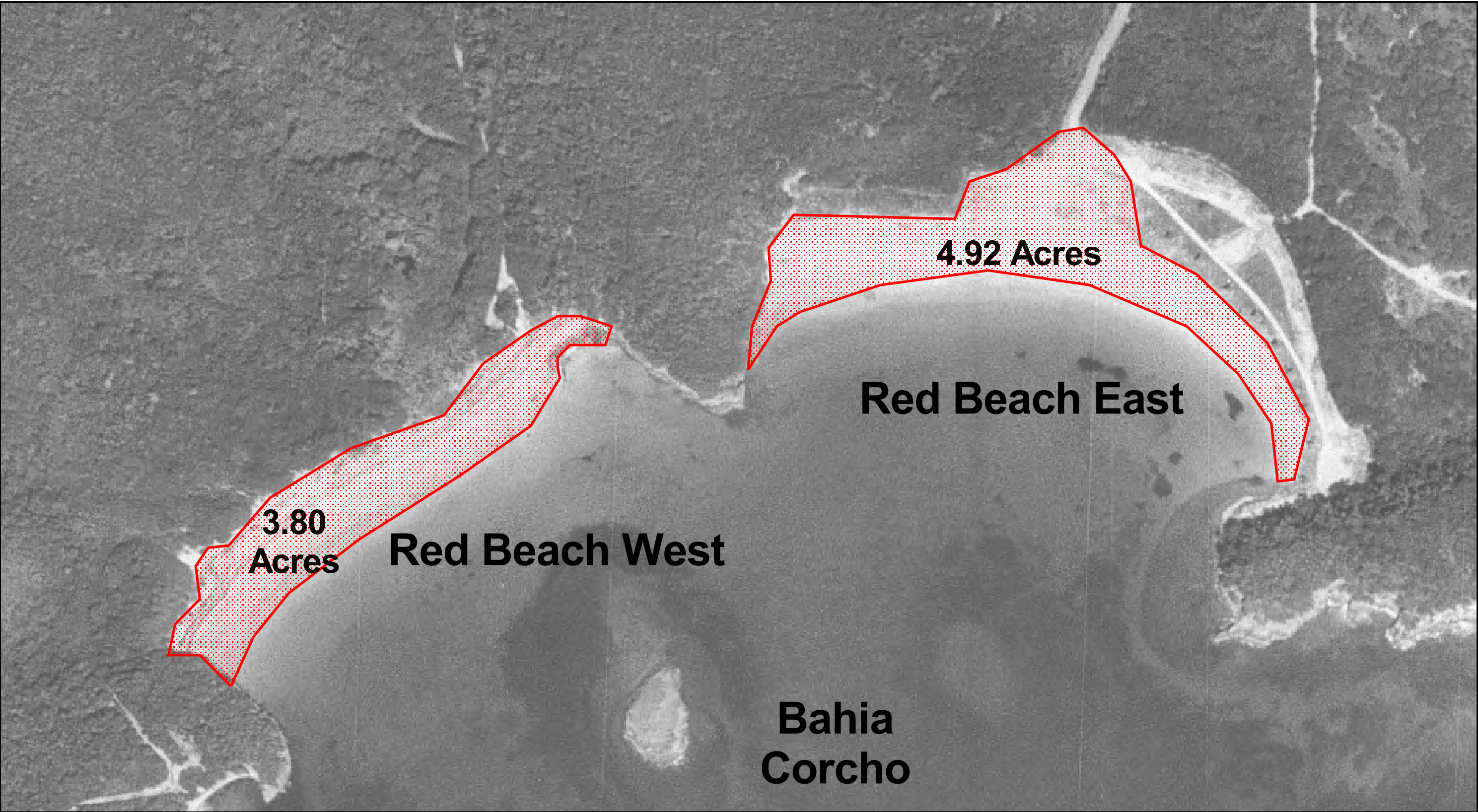


NAD83 / UTM zone 20N

Source: NAEVA Geophysics Inc.

Figure 2-2
Red Beach and Blue Beach
Geophysical Survey Areas
Vieques Island, Puerto Rico

December 2002



LEGEND

 Approximate Limits of Preliminary OE Investigation

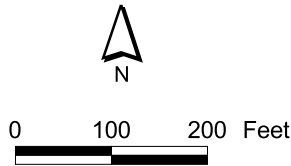
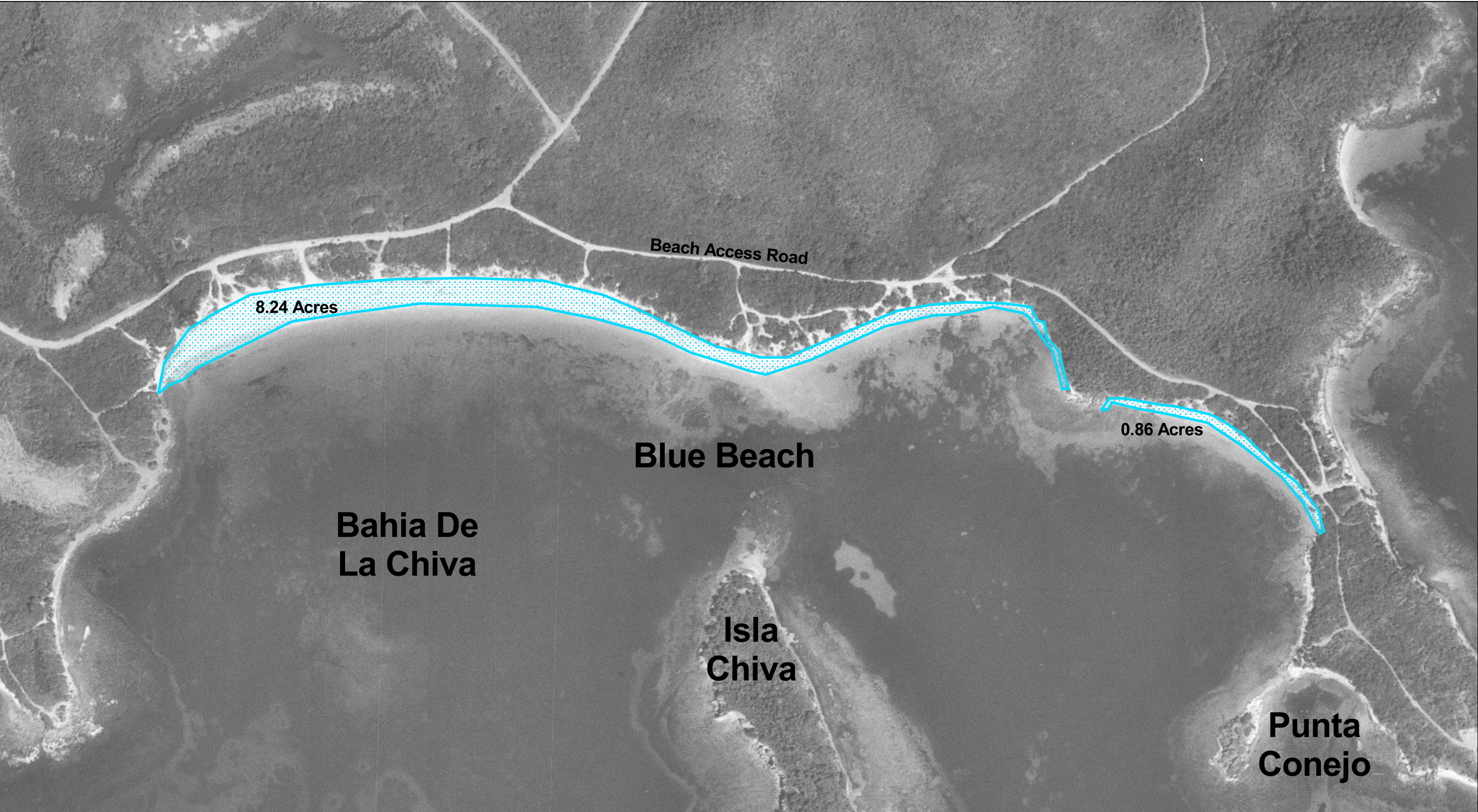


Figure 2-3
Red Beach Geophysical Survey Areas
Vieques Island, Puerto Rico



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 Approximate Limits of Preliminary OE Investigation

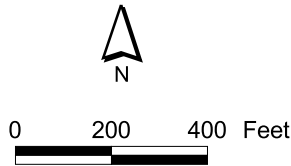


Figure 2-4
Blue Beach Geophysical Survey Areas
Vieques Island, Puerto Rico

2.2.2 Land Use

In general, the Vieques Naval Training Range (14,600 acres) is largely uninhabited. The Navy land use, primarily for military training and those support services associated with the training, comprises only a fraction of these land areas. Future land use is expected to change with the Navy's planned termination of operations in May 2003. Current legislation calls for the EMA to be turned over to the DOI at that time, after which it is expected to be operated as a wildlife refuge.

2.2.3 Climate

The climate of Vieques is characterized as warm and humid (tropical-marine), with frequent showers occurring throughout the year. The temperature on Vieques is moderated by the easterly trade winds blowing across the island year-round, resulting in a mean annual temperature of 79°F to 80°F and a daily variation of 15°F to 25°F. The average rainfall is approximately 36 inches, with extremes of 25 inches in the east and 45 to 50 inches in the west (A.T. Kearney, Inc., October 1988).

2.2.4 Topography

The topography of Vieques consists generally of hills and valleys throughout the entire island. The western side of the island consists of gently rolling hills with a deeper soil profile than the eastern side, which is more exposed rugged terrain. The highest point on the western side is approximately 1,000 ft above mean sea level (msl) at Monte Pirata. The highest point on the eastern side is approximately 420 ft above msl at Cerro Matias. The coastal areas contain level terrain primarily made up of lagoons and mangrove swamps.

The site topography of the two study area beaches is relatively flat with gentle slopes southward toward the sea. The mapped bedrock geology at the sites is primarily comprised of limestones. Beach and dune deposits made up of calcite, quartz, and volcanic rocks, and fragment sand dominate surface morphology at the site. Bedrock outcrops occur at the northern end of the beaches and mark the limits of investigation in those areas. Vegetative ground cover consists mainly of grass and low brush with occasional taller brush and small trees.

2.3 History

Within the LIA and SIA areas of the Vieques Naval Training Range, naval gunfire support (NGFS) and air-to-ground (ATG) ordnance delivery training was conducted for Atlantic Fleet ships, NATO ships, air wings, and smaller air units from other allied nations and the Puerto Rican National Guard. Within the EMA, the Fleet Marine Force, Atlantic, has conducted training for Marine amphibious units, battalion landing teams, and combat engineering units. Marine forces implemented simulated amphibious assault operations over suitable beach heads that included Blue, Green, Purple, Red, and Yellow beaches. These simulated assaults involved pre-assault operations, ship-to-shore movement, assault, consolidation, and withdrawal. Battalion teams would spend an average of three weeks operating in the EMA, and would undertake two to four amphibious landings on Red, Blue, and Purple Beaches. These landings could last 3 to 5 days. Although amphibious assaults were executed only with blank ammunition, Marine forces would conduct live firing for 8 to

11 days in the EMA (not on the beaches), with all weapons including pistols, rifles, machine guns, grenades, tanks, artillery, recoilless rifles and mortars (Tippets, et al., 1979).

Only inert ordnance was used for training exercises on Red Beach and Blue Beach. Exercises included ATG and close air support (CAS) sorties, naval surface fire support (NSFS) training, an amphibious landing Supporting Arms Coordination Exercise (SACEX), and multiple unit level training exercises similar to Combat Search and Rescue (CSAR) training.

Amphibious landings were conducted in five phases: pre-assault operations, ship-to-shore movement, assault, consolidation, and withdrawal. Landing Craft Utility, Landing Craft Mechanized, Landing Craft Air Cushion, Logistic Support Vessel, Amphibious Assault Vehicle, and other support craft would be used to transfer limited numbers of vehicles, cargo, and personnel from ships to shore.

Approximately 2,000 personnel typically participated in an amphibious landing, with approximately 850 personnel going ashore daily. Once on shore, personnel and associated support vehicles would travel inland over designated roads, conduct maneuvers, train on existing ranges, and bivouac for approximately 1 week. The beach assaults typically began before dawn and would last 3 to 4 hours. The entire amphibious landing was typically completed in 8 to 12 hours. Approximately 35 percent of the ordnance was fired at night.

The Marine Corps designated four landing beaches (Red, Blue, Purple, and Yellow) for amphibious assault training. The landings were normally conducted on Red Beach or Blue Beach and forces would move inland along existing beach access roads to the designated training areas and gun positions. Mobility matting (MOMAT) was used on the beach, if necessary, to prevent heavy vehicles from getting stuck in the sand. MOMAT is a synthetic spongy plastic material placed on the beach and recovered upon completion of operations. Subsequent equipment/troop transport would involve approximately four craft in any given 4-hour period. A minimum number of personnel (20 to 30) associated with the Beachmaster Camp would be encamped for 5 to 6 days until forces completed withdrawal operations. Clearing of existing vegetation and was not required for landing exercises. Permanent lighting was not required but vehicle lighting and flashlights were used during recovery operations (U.S. Department of Commerce, NOAA. *Ser N46E/0585: Section 7 Consultation on U.S. Navy Training Exercises at the Atlantic Fleet Weapons Training Facility [AFWTF], Inner Range, Vieques, Puerto Rico: Combined Composite Unit Training [COMPTUEX] – Multiple Unit Level Training [Multi-ULT], September-October 2001. Approval letter to Acting Commander, Navy Region Southeast. September 14, 2001).*

2.4 Demographic Profile

Land access to the Red and Blue Beaches has been restricted to Navy personnel only since 1999. Prior to 1999, civilians were allowed beach access on a limited basis.

2.5 Current and Future Site Use

Currently, the Red Beach and Blue Beach area is part of the EMA, owned by the Navy.

The planned future land use for the Red and Blue Beaches is as a wildlife refuge to be managed by the DOI. The planned land transfer date is May 1, 2003.

2.6 Analysis of Historical Records

A PRA Report with an integrated ARS Report is concurrently being prepared. This data has been reviewed for any applicable references to Red Beach and Blue Beach.

2.7 Previous Investigations

No previous environmental or MEC investigations have been conducted in the EMA (including the Red and Blue Beaches).

2.8 Previous Removal Actions

No previous removal actions have been conducted in the Red and Blue Beach Areas.

SECTION 3

Site Characterization

3.1 Site Investigations

3.1.1 Site Description

Red Beach and Blue Beach both consist of open beach, dirt and sand access roads, with little or no vegetative cover. The geology consists primarily of beach and dune deposits made up of calcite, quartz and volcanic rocks, and fragment sand with local magnetite. Appendix A contains photographs of the field investigation. The actual beach and road area surveyed was 6 acres at Red Beach and 5.7 acres at Blue Beach. This is somewhat less than the area shown in Figure 2-3, because of differences in the actual beach area present during the survey in December 2002, versus the area digitally mapped on the 1998 aerial photograph. Beach areas have been reduced because of erosion processes.

3.1.2 Site Investigation Objectives

The objective of this study was to perform a visual inspection and geophysical survey to assess whether Red Beach and Blue Beach parcels were contaminated with ordnance. The survey was accomplished with several geophysical instruments, with the corresponding land survey information being recorded by Global Positioning System (GPS).

The final site investigation objective was the reacquisition of anomalies identified by the geophysical survey and the subsequent intrusive investigation of each anomaly to identify, catalog, and properly dispose of all encountered material.

3.1.3 Geophysical Survey

The purpose of the geophysical investigation was to detect and map subsurface metal in an attempt to evaluate the presence of MEC at Red Beach and Blue Beach. To further characterize the subsurface contamination represented by geophysical anomalies, 100 percent of the beach areas used for amphibious assaults (Red Beach East, Red Beach West, and Blue Beach) were surveyed. The main access road to Red Beach and access roads to Blue Beach were also surveyed. All of the selected targets in the beach areas were reacquired for intrusive investigation. In the area near the access road to Red Beach, several hundred anomalies were mapped. Selected intrusive sampling of these anomalies showed that this area was used to load munitions onto trucks. All of the anomalies sampled in this area were either metal lifting lugs used to load munitions, or scrap metal and trash. No MEC was found in this area. A total of 767 of 1,036 anomalies were reacquired over the entire survey area. The 269 anomalies, not reacquired, are all located in the munition loading area where lifting lugs and scrap were found.

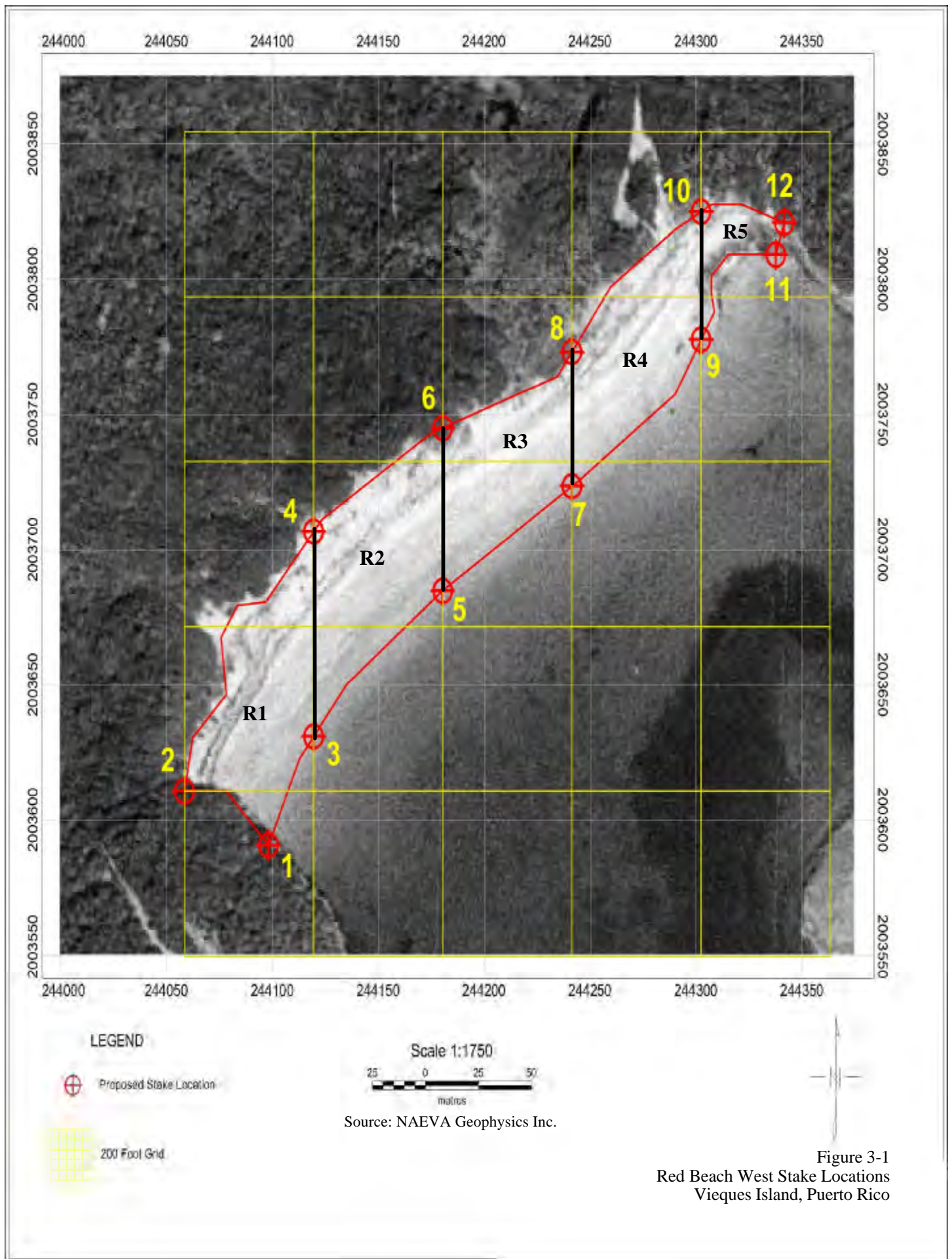
Red Beach was divided into two distinct areas, Red Beach West and Red Beach East, totaling approximately 6 acres. Blue Beach consisted of approximately 5.7 acres. Both beaches were partitioned into a series of grid cells approximately 200 ft long (widths were determined by

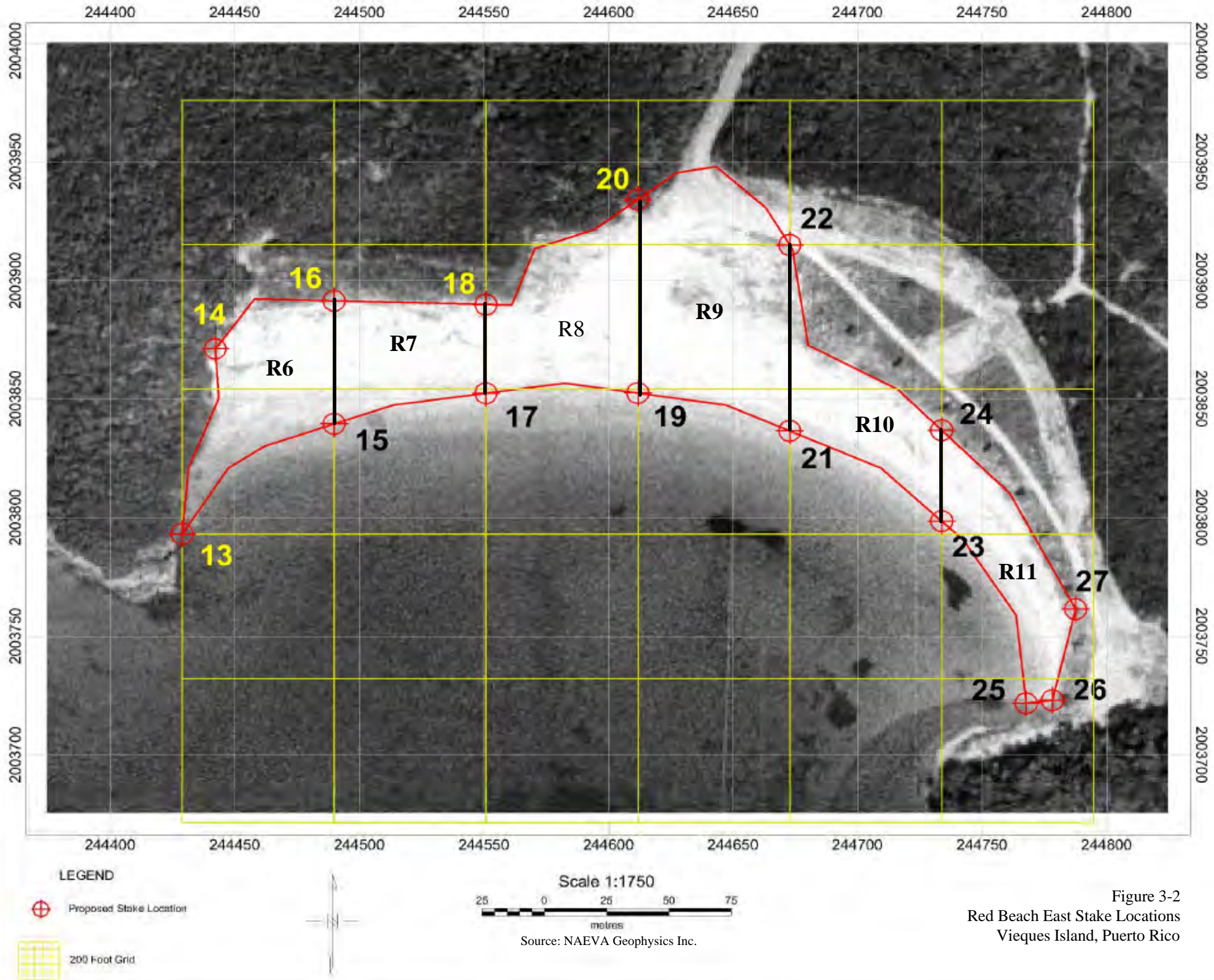
the widths of the beaches). Grids were named consecutively from west to east at each beach (R1 through R11 at Red Beach and B1 through B24 at Blue Beach) as shown on Figures 3-1 through 3-4. Figure 3-1 shows the stake locations for grids R1 through R4 on Red Beach West; Figure 3-2 shows the stake locations for grids R6 through R11 on Red Beach East; Figure 3-3 shows the stake locations for grids B1 through B19 on Blue Beach West; and Figure 3-4 shows the stake locations for grids B20 through 24 on Blue Beach East.

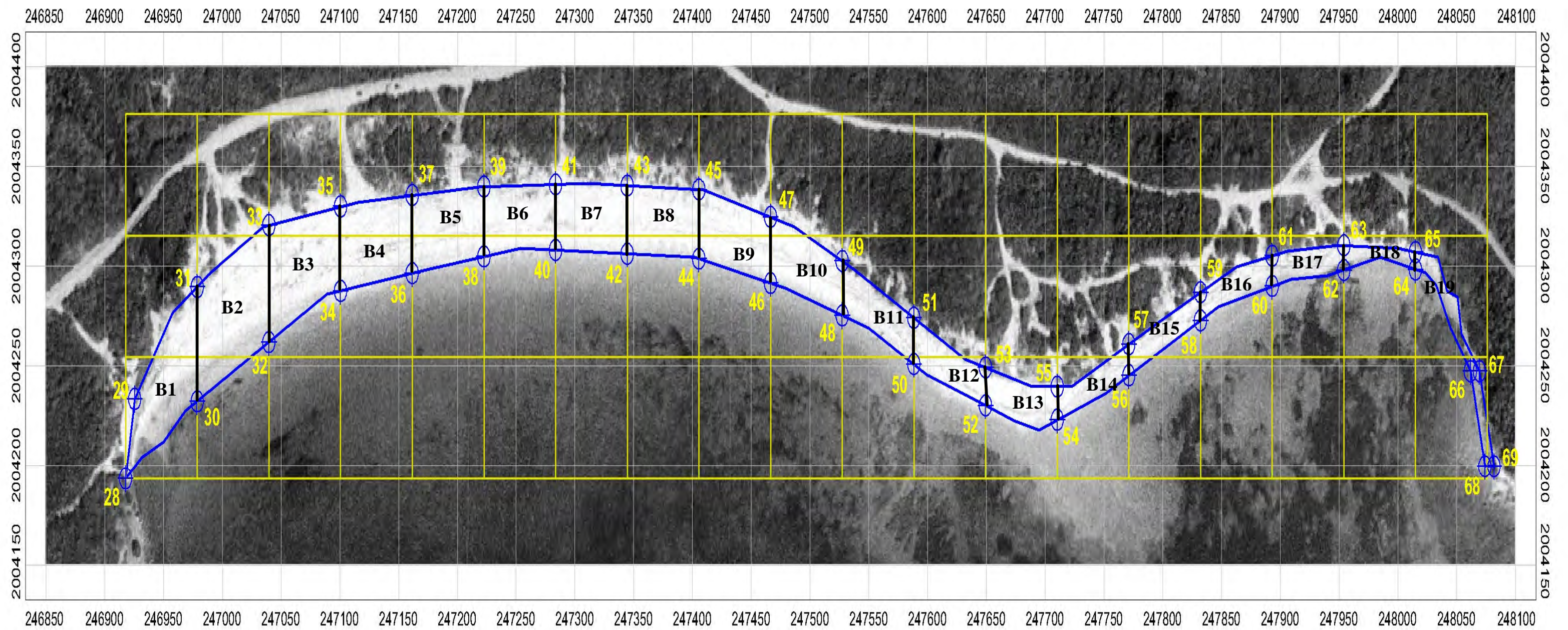
A two-phase geophysical prove-out was conducted prior to the start of the production geophysical mapping. The first phase of the prove-out was conducted at the previously established prove-out area at Solid Waste Management Area (SWMU) 4. NAEVA successfully utilized the SWMU 4 prove-out to demonstrate the functionality of the EM-61 electromagnetic sensor based on the duplication of earlier successful results. Geophysical prove-out results are included in Appendix C. A test line was then established at Red Beach by CH2M HILL personnel to evaluate site-specific conditions and detection criteria. Because of the small size of many of the munitions of interest at this site, NAEVA elected to collect the test line in two different modes of operation for the EM-61. The first mode was identical to that used at the SWMU 4 prove-out; the sensor was mounted on wheels approximately 40 centimeters (cm) above the ground surface. Test line data were then collected with the sensor mounted on a sled placing it approximately 3 to 5 cm above the ground surface. The lowered sensor height allows a greater depth of detection and more sensitivity to small metallic items.

All prove-out data were immediately processed and reviewed by the site geophysicist, the NAEVA technical support team, and CH2M HILL management, prior to the commencement of the geophysical investigation. Results of the test line prove-out revealed that the smallest munitions of interest (5.56mm cartridge casings) do not contain sufficient mass to be detectable, even at the lower sensor height. The smallest potential MEC item of concern is the 20mm projectile. NAEVA was able to detect the 20mm projectile in the test line at a depth of 1 ft. Therefore, with no measurable loss in data quality, the wheel mode was selected as the most efficient data collection method at Red Beach and Blue Beach. Based on the results of the geophysical prove-out, the wheel mode was able to demonstrate a 96 percent probability of detection (46 out of 48 items detected) of items 20mm in size and larger at a confidence level of 95 percent for the depths indicated in the prove-out (Appendix C). This exceeds EPA's guidance criteria (EPA, 2002) of 85 percent probability of detection at a 90 percent confidence level.


All geophysical data were collected and targets reacquired utilizing the Geonics EM-61 instrument. The EM-61 is a time-domain electromagnetic instrument designed to detect, with high spatial resolution, shallow ferrous and non-ferrous metallic objects. The instrument consists of two air-cored coils (1 meter [m] x 0.5 m), batteries, processing electronics, and a digital data recorder. The larger of the two coils functions as the EM source and receiver and is positioned 40 cm below a second receiver coil. Secondary currents induced in both coils are measured in millivolts (mV). For this investigation, only the more sensitive bottom coil data were used for target selection.





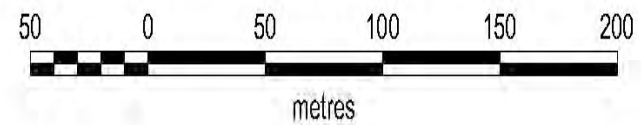


LEGEND

 Proposed Stake Location

 200 Foot Grid

Scale 1:3500



Source: NAEVA Geophysics Inc.

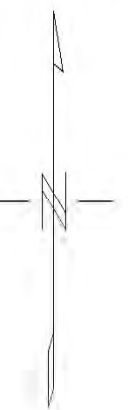
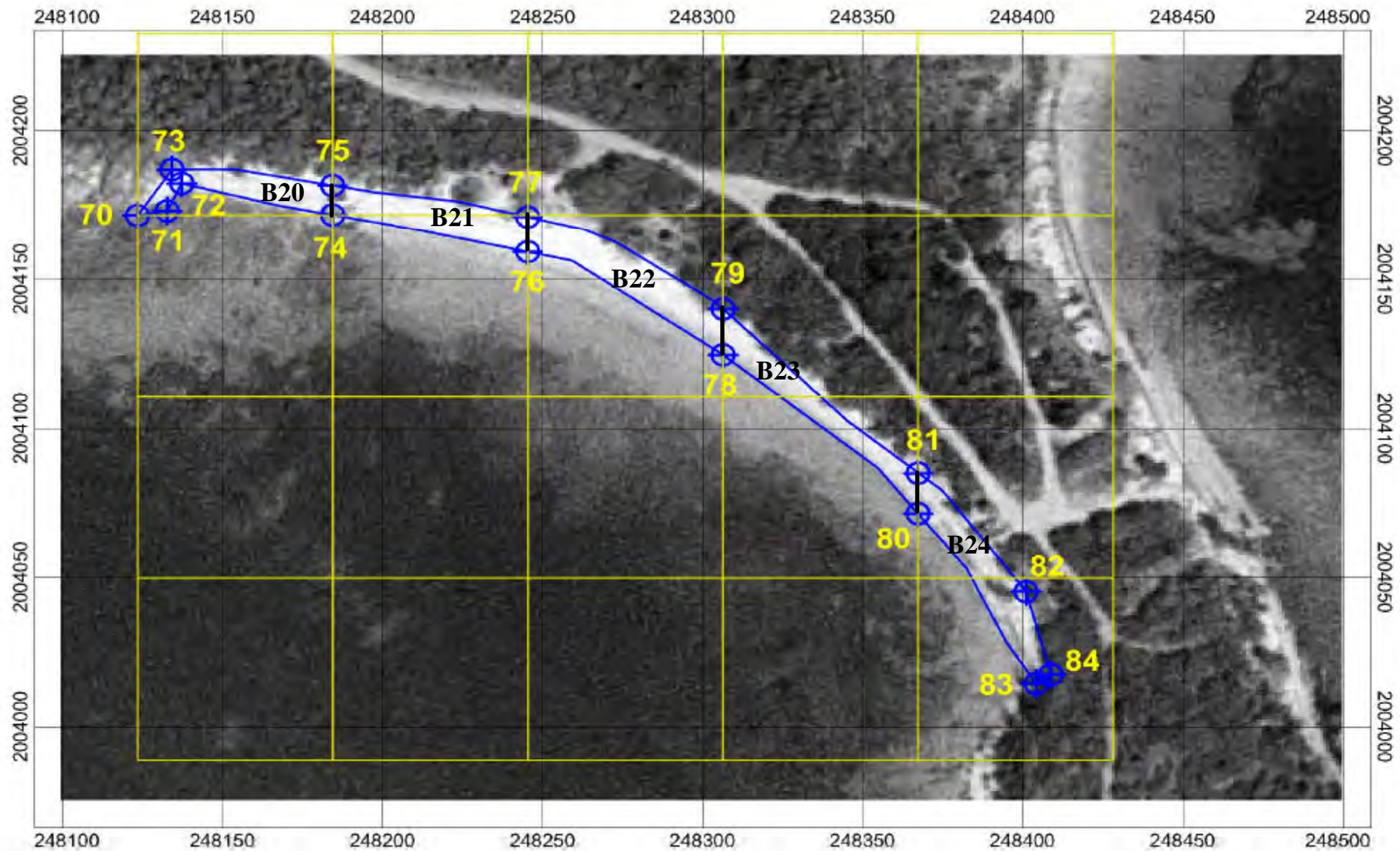


Figure 3-3
Blue Beach West Stake Locations
Vieques Island, Puerto Rico



LEGEND



Proposed Stake Location



200 Foot Grid

Scale 1:1750



Source: NAEVA Geophysics Inc.



Figure 3-4
Blue Beach East Stake Locations
Vieques Island, Puerto Rico

Positional data were collected simultaneously with the geophysical data utilizing an Ashtech Z-FX Surveyor RTK GPS system. Because no known coordinates were available, GPS base, station locations were established at Red Beach and then at Blue Beach by performing four half-hour-long positional “gets” during the course of a single day and calculating the average of the resultant positions, per manufacturer recommendations. A second GPS antenna was then mounted over the center of the EM-61 coils. The GPS base station, utilizing an Ashtech Z-FX receiver, broadcast real-time corrections to the roving GPS unit via a radio link using Pacific Crest radio modems. This system provides positional updates at a rate of 1 Hz, with an accuracy of 3 cm horizontal. The positional data were logged to the same file as the geophysical data and stored in a Juniper Systems Allegro field computer. At the end of each day, all field data were downloaded into a laptop computer for editing and then sent to NAEVA’s offices for target selection and map production.

Target reacquisition was also accomplished utilizing the Ashtech GPS system and the EM-61. Target locations were uploaded to the Allegro field computer and then located in the field by one member of NAEVA’s field team. The second team member followed with the EM-61, refining target positions where necessary. USA Environmental’s dig team was supplied with electronic versions of the dig lists as well as paper copies of all contour maps.

3.1.4 MEC/UXO Survey

USA Environmental, Inc., personnel verified the anomalies by excavating the area flagged by the geophysical team. A total of 763 metallic targets identified by the geophysical contractor were investigated by the MEC/UXO team in accordance with the Statement of Work (SOW). In addition, four targets were excavated and flagged by USA Environmental in areas where gaps occurred in the geophysical data.

A total of nineteen expended small arms cartridges (5.56mm or 7.62mm) also were identified and removed. The USA Environmental *After-Action Report* provided in Appendix B includes a list of the 767 targets identified. These items were excavated, identified, and properly disposed of by USA Environmental UXO personnel. Appendix B also contains copies of the USA Environmental Field Logs describing the field effort and the findings.

Appendix C contains the NAEVA *Geophysical Investigation Report* which includes aerial photos, EM-61 contour maps, quality control data, field notes, and daily logs.

3.1.5 Grid Layout

Red Beach was divided into two distinct areas, Red Beach West and Red Beach East; Blue Beach was also divided into Blue Beach West and Blue Beach East. Both Red and Blue Beaches were partitioned into a series of grid cells approximately 200 ft long (widths were determined by the widths of the beaches). Each beach was evaluated separately and consisted of only open beach areas, because there is little to no vegetation present at both investigation sites. For this investigation, 100 percent of all defined quadrants were investigated. The extreme eastern portion of Blue Beach East was not investigated because of the rocky nature of the coastline and limited access. This area was not used for amphibious landings because of the shallow water depth, narrow and rocky beach, and difficult road access.

3.2 Source, Nature, and Extent of MEC

A total of 767 metallic anomalies were investigated. Several ordnance-related scrap (ORS) items were located. Approximately 20 expended small arms cartridges (5.56mm or 7.62mm) also were removed

No items were located that required disposal by detonation.

No MEC items were encountered within the project area.

All items recovered were non-hazardous, and were stored temporarily at Camp Garcia.

3.3 Description of Hazards of Specific MEC Encountered

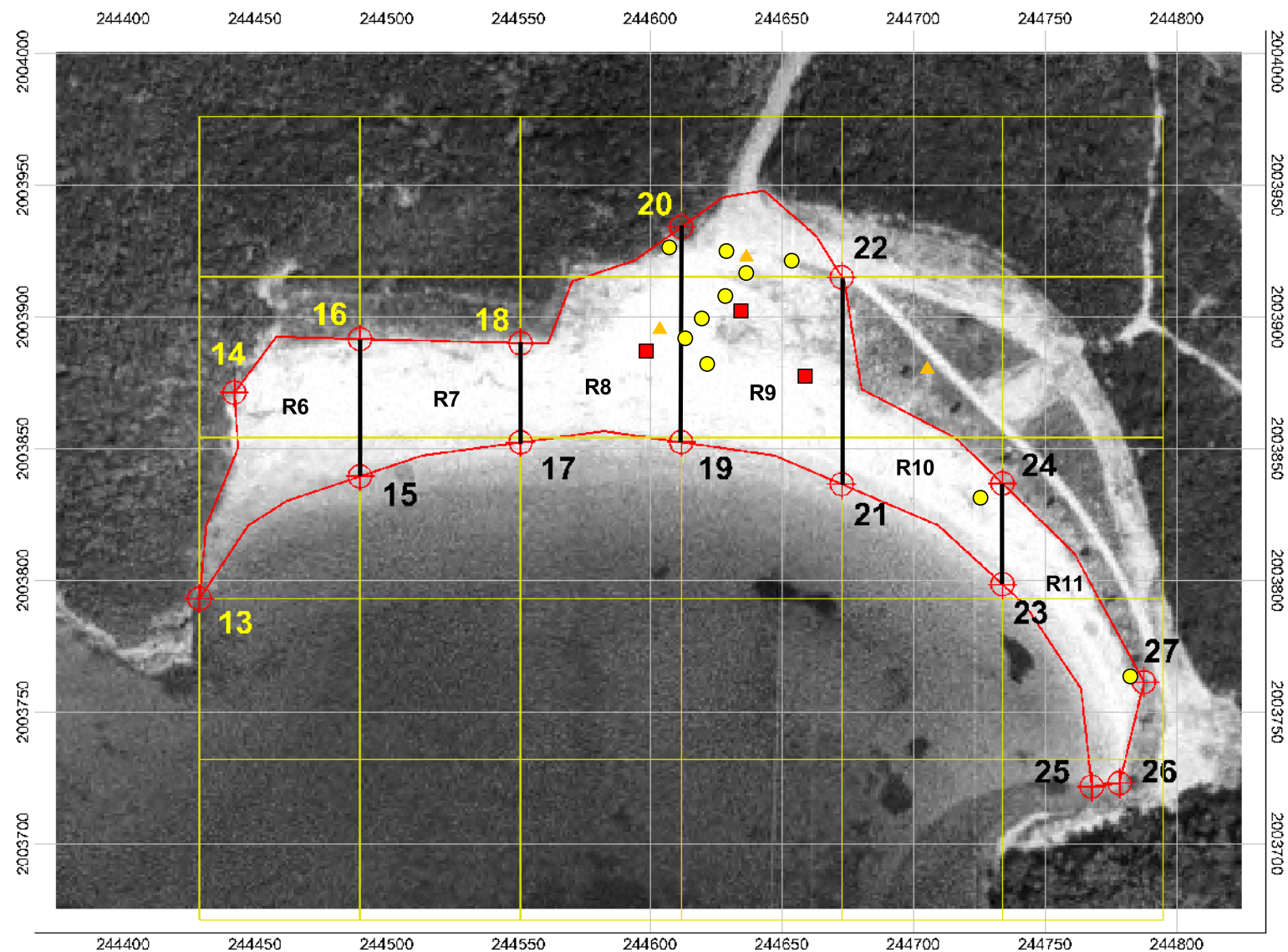
The area was cleared to a depth of 1 ft as specified in the Work Plan. No ordnance items were recovered. The geophysical survey was able to detect a 20mm projectile to a depth of 1 ft. Table 3-1 summarizes the Military-Related Items recovered during excavation of the anomalies at Red Beach and Blue Beach.

The Military-Related Items recovered at Red Beach are listed in Table 3-2 and mapped on Figure 3-5.

TABLE 3-1
Summary of Military-Related Items Recovered at Red Beach and Blue Beach
Vieques Island, Puerto Rico

Item	Material	Red Beach Quantity	Blue Beach Quantity	Total
7.62mm machine gun cartridge, blank, expended	Brass	3	1	4
5.56mm M-16 cartridge, blank, expended	Brass	13	2	15
Expended Smoke Grenade	Steel	3	0	3
Total Items Found		19	3	22

The Military-Related Items recovered at Blue Beach are listed in Table 3-3 and mapped on Figure 3-6.



Legend

- 5.56 mm Cartridge, Expanded
- ▲ 7.62 mm Cartridge, Expanded
- Grenade Spoon

Scale 1:1750

25 0 25 50 meters

Source: NAEVA Geophysics Inc.

Figure 3-5
Red Beach East ORS Locations
Vieques Island, Puerto Rico

TABLE 3-2
Military-Related Items Recovered at Red Beach
Vieques Island, Puerto Rico

Grid #	Anomaly ID	Depth to Tip (inches)	Depth to Tail (inches)	Date Found	Description
R10	R10-71	5	5	12-Dec-02	1 each 7.62mm cartridge case expended
R10	R10-106	3	3	12-Dec-02	1 each 5.56mm cartridge blank expended
R11	R11-29	5	12	12-Dec-02	1 each 5.56mm cartridge blank expended and small aluminum scrap. Contact continues past 12 inches
R8	R8-29	0	7	11-Dec-02	1 each grenade spoon
R8	R8-30	3	10	11-Dec-02	1 each piece of aluminum scrap and 1 each 7.62mm cartridge blank expended.
R8	R8-45	3	12	11-Dec-02	2 each 3/4-inch steel bolt and 2 each 5.56mm cartridge blanks expended
R8	R8-74	0	6	11-Dec-02	1 each 5.56mm cartridge blank expended
R9	R9-49	5	12	16-Dec-02	1 each 12-inch length of heavy steel re-bar and 2 each 5.56mm blank cartridges expended
R9	R9-67	8	12	16-Dec-02	1 each 1-inch heavy steel shackle with pin
R9	R9-87	5	5	11-Dec-02	1 each 5.56mm cartridge blank expended
R9	R9-101	3	12	16-Dec-02	1 each 1/2-inch heavy steel shackle with pin
R9	R9-132	5	12	16-Dec-02	2 each 3-inch heavy steel bolts and 2 each 5.56mm cartridge blanks expended
R9	R9-213	6	6	11-Dec-02	3-inch length of steel stock and 1 each 5.56mm cartridge blank expended
R9	R9-252	4	12	16-Dec-02	1 each 7.62mm cartridge blank expended and aluminum clutter
R9	R9-253	3	12	16-Dec-02	1 each 5.56mm cartridge blank expended at 3 inches
R9	R9-261	5	12	16-Dec-02	1 each 5.56mm cartridge blank expended; contact continues deeper than 12 inches

All of the Military-Related Items identified on Red Beach during the MEC/UXO investigation were on the eastern end of Red Beach East as shown on Figure 3-5. No ORS was identified on Red Beach West.

TABLE 3-3
Military-Related Items Recovered at Blue Beach
Vieques Island, Puerto Rico

Grid #	Anomaly ID	Depth to Tip (inches)	Depth to Tail (inches)	Date Found	Description
B1	B1-1	0	12	13-Dec-02	1 each 7.62mm cartridge blank expended; contact continues deeper than 12 inches
B2	B2-11	4	12	13-Dec-02	1 each 5.56mm partial cartridge expended
B4	B4-17	4	12	16-Dec-02	1 each 5.56mm cartridge blank expended at 4 inches; contact continues deeper than 12 inches

The ORS identified on Blue Beach during the MEC/UXO investigation was located on the western end of Blue Beach West as shown in Figure 3-6. No ORS was identified on Blue Beach East.

Because the findings of this investigation did not detect any munitions or UXO items, no risk assessments or corrective actions are warranted at these sites.

3.4 Update of ARS

An initial review of the data currently being used for the PRA Report ARS reveals that for amphibious assault training, the Marine Corps designated four landing beaches (Red, Blue, Purple, and Yellow) (Tippets, et al., 1979; U.S. Government Congress Review, 1981; Department of the Navy, 1999; LANTDIV). The landings were normally conducted on Blue Beach or Red Beach, and infrequently on Purple or Yellow Beaches. It has also been documented that no live weapons firing was permitted during the amphibious training exercises (Tippets, et al., 1979).

3.5 Addendum to Report

At the request of EPA, additional investigation activities were conducted from April 27-29, 2003. Seventy-two geophysical anomalies were investigated to a depth of four feet and a visual underwater survey was conducted to a depth of 4-5 feet at both Red and Blue Beaches. The only military item found was a practice mine that was unfuzed, empty, and corroded. No UXO was found. The addendum is included in Appendix D.

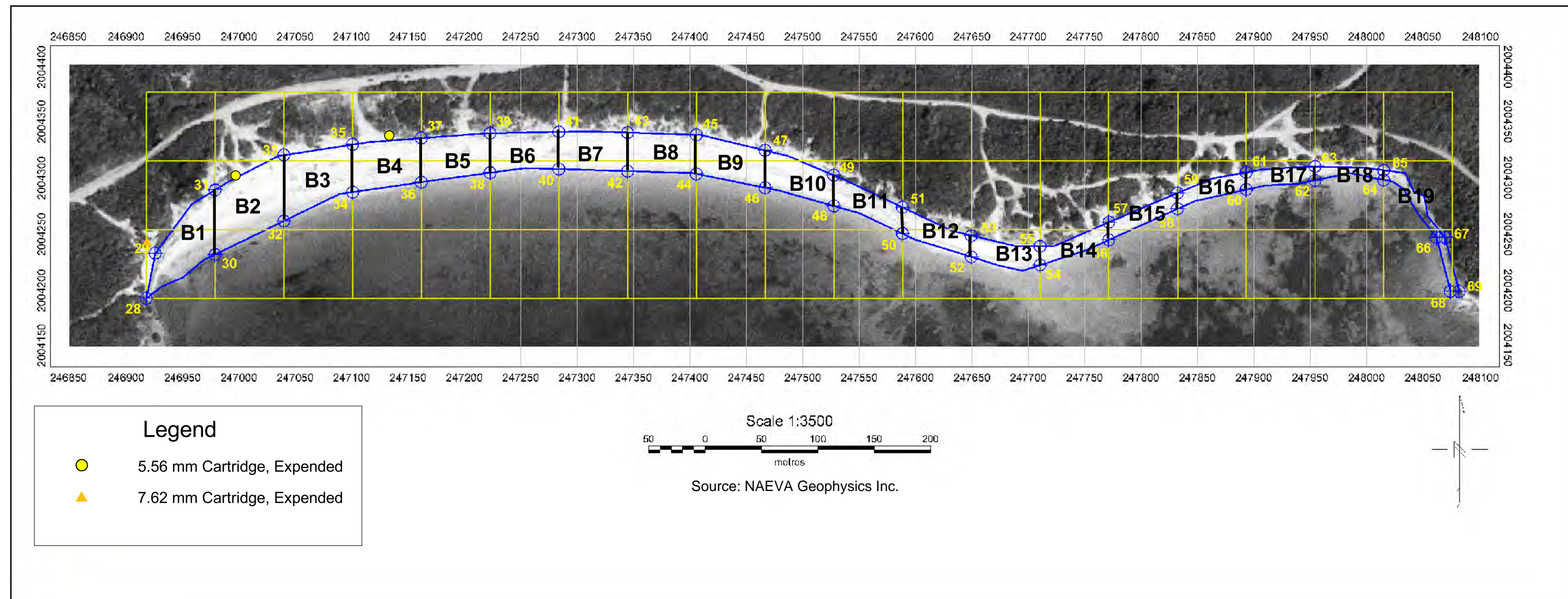


Figure 3-6
Blue Beach West ORS Locations
Vieques Island, Puerto Rico

SECTION 4

Conclusions and Recommendations

4.1 Conclusions

The results of the MEC Site Investigation indicate that no MEC is present to a depth of 1 ft bls on the beach and road areas of Red Beach and Blue Beach. In general, the MEC survey supported historical information for the site which determined that the site was never used as a range or otherwise exposed to live fire from military munitions. The findings of the geophysical survey and anomaly recovery identified 22 military training-related items, but no MEC were identified. The Military-Related Items were limited to 5.56mm and 7.62mm expended blank cartridges, and fragments of expended smoke grenades. A significant portion of the 767 anomalies identified during the geophysical survey were non-MEC scrap related to subsurface civilian trash, likely originating during the period that the beaches were open to the public.

In accordance with the available regulatory and DoD guidance, these findings do not require an evaluation of risk, nor do they warrant preparation of a response action. The only potential risk represented by the types of items found would be the possible accidental firing of a small arms blank cartridge. The small arms blank cartridges, all of which were expended, have no projectiles and the only potential risks upon discharge would be a flash powder burn and noise impacts.

4.2 Recommendations

The Preliminary MEC Site Investigation was planned and executed in accordance with the intended land use for Red Beach and Blue Beach as a wildlife refuge. The refuge, which encompasses approximately 13,700 acres, will be managed by the DOI. Considering the current and expected future land use and the conclusions presented in Section 4.1, CH2M HILL recommends that No Further DoD Action is Indicated (NFDIAI) for Red Beach and Blue Beach.

Results of the additional investigations conducted from April 27-29, 2003 (Appendix D) also concluded that Red Beach and Blue Beach can be opened for recreational use by the public.

SECTION 5

References

A.T. Kearney, Inc., and K.W. Brown and Associates, Inc. *Phase II RCRA Facility Assessment of the Naval Ammunition Facility, Vieques Island, Puerto Rico*. October 1988.

CH2M HILL. *Final Initial Ordnance and Explosives Site Assessment Work Plan for Red Beach and Blue Beach*. November 2002.

Commander U.S. Second Fleet and Commander U.S. Marine Corps Forces Atlantic. *The National Security Need for Vieques, A Study*. Prepared for the Secretary of the Navy. July 15, 1999.

LANTDIV. *Atlantic Fleet Weapons Training Facility Request For Project Site Approval/Explosive Safety Certification. NAVFAC 11010/31 (Rev. 4-87) Part II Division A – Explosive Safety. Inner Range Training Activities on Vieques Island*. (recovered at LANTDIV).

NAEVA Geophysics, Inc. *Unexploded Ordnance Detection Geophysical Investigation Work Plan for Red Beach and Blue Beach*. November 2002.

Tippets, Abbet, McCarthy, Stratton, and Ecology and Environment, Inc., *Draft Environmental Impact Statement, Continued Use of the Atlantic Fleet Weapons Training Facility Inner Range (Vieques)*. Prepared for the Department of the Navy. 1979.

U.S. Government Printing Office. *Naval Training Activities on the Island of Vieques, Puerto Rico. Report of the Panel to Review the Status of Navy Training Activities on the Island of Vieques of the Committee on Armed Services House of Representatives*. Ninety-Sixth Congress Second Session. Committee Print No 31. February 3, 1981.

USGS. *Water Resources Investigation Report 86-4100. Reconnaissance of the Ground-Water Resources of Vieques Island, Puerto Rico*. 1989.

APPENDIX A

Site Photographs



1. Red Beach (facing southwest).



2. Red Beach (facing west).



3. Red Beach (facing east).



4. Red Beach west (facing northeast).



5. Red Beach Equipment Check Area (ECA).



6. Red Beach west target area.



7. Red Beach east.



8. Red Beach western end.



9. Blue Beach west.



10. Blue Beach western tip.



11. Blue Beach east.



12. Blue Beach eastern tip.



13. Hand-held data logger used in OE/UXO investigation at Red Beach and Blue Beach.



14. Hand-held data logger used in OE/UXO investigation at Red Beach and Blue Beach.



15. Anomaly reacquisition with metal detector.



16. Anomaly investigation.



17. Geophysical survey along Red Beach with EM-61 magnetometer and DGPS.



18. Geophysical survey along Red Beach with EM-61 magnetometer and DGPS.



19. Geophysical team conducting anomaly reacquisition with DGPS.



20. Anomaly reacquisition.



21. Ferrous artifacts found (including nails, rebar, and shovel); non-OE scrap.



22. Ferrous artifacts found (including scrap metal, rebar, and shovel); non-OE scrap.



23. Ferrous artifacts found; non-OE scrap.



24. Non-ferrous artifacts found; non-OE scrap.



25. Ordnance-related scrap found.



26. Ordnance-related scrap found.



27. Drums used for scrap metal disposal.



28. Drum holding area for scrap metal disposal at Camp Garcia.

APPENDIX B

After Action Report (USA Environmental, Inc.)



USA Environmental, Inc.

AFTER ACTION REPORT

UXO/OE INVESTIGATION

Red and Blue Beach, Camp Garcia,

Vieques, Puerto Rico

Prepared for CH2MHill, Inc

January 2, 2003

USA ENVIRONMENTAL, INC.

AFTER ACTION REPORT, RED AND BLUE BEACH OE/MEC INVESTIGATION, VIEQUES, PUERTO RICO

January 2, 2003

CH2MHill

Mr. Fernando Ferreira

4350 West Cypress

Suite 600

Tampa, FL 33607

Subject: After Action Report for Field Activities at Red and Blue Beach, Vieques Island, Puerto Rico.

Dear Mr. Ferreira,

USA Environmental, Inc (USA) has completed the unexploded ordnance/ordnance and explosives (UXO/OE) investigations at Red and Blue Beach.

Site Operations

The USA Team consisting of 4 UXO personnel mobilized at varying stages during the project. USA's Senior UXO Supervisor (SUXOS) and Project Manager (PM) arrived in San Juan on November 29th to receive equipment. The team arrived in Vieques the following day to stage equipment and secure lodging. USA's UXO Technician III and Technician II arrived in Vieques on December 8th 2002. USA personnel demobilized Vieques on December 21st, 2002. The USA Team completed all operations in accordance with the Statement of Work and the instructions from the on-site CH2MHill Site Manager.

On Monday, December 2nd USA's SUXOS and UXO Technician III conducted a site visit, site assessment and site-specific training. All personnel were briefed on site conditions, Vieques and Navy public relations and OE precautions. Site operations began on December 3rd with USA personnel assisting NAEVA Geophysics in their site setup and site layout. The beach area was cleared of all visible trash and metallic items to facilitate the geophysical survey.

Intrusive investigations began on December 10th. Anomalies were selected and marked with a numbered stake flag. The UXO investigation team using a Foerster Minex (all metals detector) would go to the location of the flag and refine the location of the anomaly. The earth overburden was then removed to expose the source of the anomaly. If the anomaly was not ordnance related it was removed from the excavation hole and the hole was re-swept with the Minex to assure that the source of the anomaly had been removed. If a signal was detected the UXO team would excavate to a depth of 12 inches. If the contacts were not visible at that depth the UXO team would log the item as a "No find. Deeper than 12 inches". If during the investigation an item was located that appeared to be ordnance related, two UXO Technician's would verify if it was safe to move.

USA investigated the source of 767 anomalies on Red and Blue Beach. One ORS item was located that was an expended cartridge case for a 3" projectile. Approximately 20 expended small arms cartridges (5.56mm or 7.62mm) were also removed. No items were located that required disposal by detonation. A complete list of all anomalies is located in Appendix A.

USA ENVIRONMENTAL, INC.

AFTER ACTION REPORT, RED AND BLUE BEACH OE/MEC INVESTIGATION, VIEQUES, PUERTO RICO

USA used a Custom Anomaly Tracking System to log each anomaly. Working closely with CH2MHill's geophysical contractor NAEVA, the field teams developed procedure's that allowed NAEVA to supply USA with a list of anomalies on a daily basis and these targets were loaded into a handheld computer (PDA). The UXO team would investigate the provided targets and log the information into the PDA. This information was then downloaded into a Microsoft Access database. A complete list of items found is in Attachment 1. USA conducted traditional mag and flag operations in areas where NAEVA had data gaps. Four (4) anomalies were located in the data gap areas. They are defined in the database with the grid number and designator GAP1.

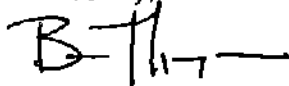
USA completed operations at Red and Blue Beach on December 20th, 2002 in accordance with the SOW and direction from on-site CH2MHill personnel. USA personnel departed Vieques on December 21st 2002.

Lessons Learned

Teamwork and cooperation among contractors as well as open lines of communication are vital to the successes of UXO projects. These values were displayed during this project. USA is pleased with the relationship they have with the contractors involved in this project and are confident they are the keys to the success of this project.

USA Environmental, Inc. safely, effectively and successfully completed all contractual requirements and looks forward to future opportunities to work with CH2MHill.

Sincerely,



Brian Thompson
Project Manager, Vieques Island Projects
USA Environmental, Inc.
813-884-5722 x143

Attachments:

Attachment 1 – Anomaly Database files

Attachment 2 – Daily Operations Summaries

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
2	R10	R10-1	244722.900	2003860.500	6546.26	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact is US Government property sign permanently affixed. Contact not removed
3	R10	R10-2	244693.800	2003889.300	1707.61	8	12	Other			12/16/2002	No	Monday, December 16, 2002	Large heavy steel plate which continues deeper than 12 inches. Non-OE. Anomaly not removed.
4	R10	R10-3	244674.600	2003894.100	488.87	8	20	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 30 in. length of heavy steel fence T post. Hole cleared.
5	R10	R10-4	244693.200	2003858.400	378.32	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
6	R10	R10-5	244733.099	2003833.921	351.27	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
7	R10	R10-7	244674.900	2003902.200	140.83	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 12 in. length of heavy steel fence T post.
8	R10	R10-8	244731.003	2003820.075	128.31	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter at 3 inches
9	R10	R10-9	244726.904	2003829.446	117.76	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
10	R10	R10-10	244729.292	2003826.820	117.35	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	inches. Contact not removed.
11	R10	R10-11	244694.887	2003871.357	86.38	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
12	R10	R10-12	244716.851	2003843.679	79.92	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
13	R10	R10-13	244691.700	2003895.900	79.54	9	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 20 in. length of heavy steel fence T post. Hole cleared.
14	R10	R10-14	244732.008	2003829.442	70.58	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
15	R10	R10-15	244728.900	2003835.000	66.46	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock; still a contact deeper than 12 inches
16	R10	R10-16	244688.400	2003890.200	61.14	8	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 12 in. length of heavy steel fence T post laying horizontal
17	R10	R10-17	244679.550	2003907.001	60.73	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea heavy steel 6 in. diameter chain ring.
18	R10	R10-18	244673.108	2003881.239	58.90	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
19	R10	R10-19	244721.539	2003823.695	58.17	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
20	R10	R10-23	244719.900	2003846.400	47.81	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 36 in. length of small steel stock; contact continues past 12 inches
21	R10	R10-24	244725.459	2003823.365	47.00	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
22	R10	R10-25	244679.600	2003864.011	45.69	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
23	R10	R10-26	244685.394	2003894.675	42.90	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	10 inch long heavy steel spike
24	R10	R10-28	244717.200	2003861.100	40.06	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
25	R10	R10-29	244712.755	2003873.164	39.04	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea piece of heavy steel scrap. non OE
26	R10	R10-31	244707.300	2003874.300	36.98	9	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 12 in. length of steel stock; contact continues deeper than 12 inches
27	R10	R10-32	244706.100	2003877.600	33.58	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
28	R10	R10-33	244710.600	2003862.900	33.47	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	30 in. length of heavy steel cable; contact continues deeper than 12 inches
29	R10	R10-34	244721.400	2003843.400	33.41	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	5 ea 3 in. steel nails; contact continues deeper than 12 inches
30	R10	R10-36	244678.800	2003868.300	28.57	3	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum scrap at 3 inches
31	R10	R10-38	244681.500	2003891.100	27.86	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
32	R10	R10-39	244709.698	2003863.549	27.76	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
33	R10	R10-40	244724.700	2003821.500	27.43	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock laying flat
34	R10	R10-41	244673.400	2003871.300	26.12	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
35	R10	R10-42	244723.041	2003821.706	25.36	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
36	R10	R10-43	244719.600	2003859.000	23.40	0	12	Other			12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
37	R10	R10-44	244725.900	2003821.800	23.20	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	Same contact as R10-40
38	R10	R10-45	244732.772	2003826.129	23.18	0	12				12/12/2002	No	Thursday, December 12, 2002	Same contact as R11-61. No find. Contact deeper than 12 inches
39	R10	R10-46	244731.474	2003832.460	22.88	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
40	R10	R10-47	244675.122	2003884.238	22.62	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1-12 inch length of comm wire; contact continues deeper than 12 inches
41	R10	R10-48	244705.200	2003877.600	22.31	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	Small piece of copper tubing
42	R10	R10-50	244674.300	2003887.500	21.09	9	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 14 inch heavy steel pipe wrench.
43	R10	R10-51	244684.800	2003888.700	19.89	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact deeper than 12 inches .
44	R10	R10-52	244700.400	2003886.600	19.49	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea small steel ammo can lid with handle.
45	R10	R10-53	244685.100	2003883.600	18.27	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 20 inch length of heavy steel fence T post; contact continues deeper than 12 inches
46	R10	R10-55	244681.200	2003887.500	17.00	5	12	Other			12/16/2002	No	Monday, December 16, 2002	Several pieces/parts of heavy aluminum truck engine parts.
47	R10	R10-56	244678.200	2003892.000	16.98	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in. steel nail; contact continues deeper than 12 inches
48	R10	R10-57	244678.500	2003871.300	16.20	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
49	R10	R10-58	244687.851	2003856.276	16.07	10	10	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 30 in. length of heavy steel re-bar laying flat
50	R10	R10-59	244696.430	2003858.416	15.35	0	12	Other			12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
51	R10	R10-60	244713.676	2003875.836	14.98	0	0				12/13/2002	No	Friday, December 13, 2002	Anomaly not prosecuted. Flag pinned at speed limit sign post adjacent to road.
52	R10	R10-61	244674.355	2003867.660	14.18	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
53	R10	R10-62	244689.276	2003856.470	14.13	10	10	Other			12/12/2002	No	Thursday, December 12, 2002	Same as ID R10-58
54	R10	R10-63	244704.332	2003873.087	14.11	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	8 in. piece of heavy gage wire; contact continues deeper than 12 inches
55	R10	R10-65	244725.600	2003860.800	13.47	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 18 in. length steel rod; contact continues deeper than 12 inches
56	R10	R10-66	244724.781	2003820.047	13.44	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. [Flag in surf zone]
57	R10	R10-67	244710.907	2003869.825	13.26	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 1 in. heavy steel shackle; contact continues deeper than 12 inches
58	R10	R10-68	244682.213	2003865.235	13.24	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
59	R10	R10-69	244710.900	2003876.400	12.42	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
60	R10	R10-71	244705.396	2003880.678	10.51	5	5	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 762 cartridge case expended
61	R10	R10-72	244717.200	2003855.100	9.82	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
62	R10	R10-74	244712.175	2003867.447	9.42	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
63	R10	R10-75	244691.100	2003887.500	9.07	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact deeper than 12 inches .
64	R10	R10-76	244677.300	2003893.200	9.01	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
65	R10	R10-77	244709.700	2003859.900	8.89	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	3 in diameter heavy steel plate
66	R10	R10-78	244728.921	2003852.300	8.84	2	2	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum can top.
67	R10	R10-80	244727.825	2003848.295	7.22	4	4	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter
68	R10	R10-81	244714.947	2003861.283	7.19	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
69	R10	R10-82	244727.400	2003847.000	6.94	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
70	R10	R10-83	244728.714	2003853.322	6.27	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
71	R10	R10-85	244688.700	2003892.900	5.54	4	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 3/4 inch steel eye bolt and 1 ea 3 in. steel nail; contact continues deeper than 12 inches.
72	R10	R10-86	244683.600	2003868.000	5.49	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter at 4 inches
73	R10	R10-87	244729.200	2003850.900	5.47	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
74	R10	R10-88	244693.800	2003876.400	5.29	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
75	R10	R10-89	244700.700	2003863.500	5.22	9	9	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea small steel tent peg 8 in. length
76	R10	R10-91	244711.500	2003874.600	5.04	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
77	R10	R10-92	244704.300	2003867.700	4.98	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
78	R10	R10-93	244679.130	2003892.393	4.68	7	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 10 in.length of heavy steel re-bar
79	R10	R10-94	244686.900	2003880.300	4.68	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 8 in. length heavy steel nail; contact continues deeper than 12 inches
80	R10	R10-96	244731.339	2003849.507	4.40	4	4	Other			12/12/2002	No	Thursday, December 12, 2002	12 in length of heavy gage steel wire
81	R10	R10-97	244707.300	2003870.700	4.38	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy steel connex box handle; contact continues deeper than 12 inches

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
82	R10	R10-98	244698.600	2003871.000	4.30	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
83	R10	R10-99	244711.438	2003857.661	4.16	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter; contact continues deeper than 12 inches
84	R10	R10-100	244695.600	2003855.100	4.13	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
85	R10	R10-103	244689.900	2003886.000	4.06	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact deeper than 12 inches .
86	R10	R10-104	244702.500	2003880.900	4.05	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
87	R10	R10-106	244725.636	2003831.105	3.94	3	3	Other	Other	None	12/12/2002	No	Thursday, December 12, 2002	1 ea 556 cartridge blank expended.
88	R10	R10-107	244672.573	2003878.789	3.92	3	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter at 3 inches; contact continues deeper than 12 inches
89	R10	R10-108	244706.700	2003867.100	3.89	7	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 2 in. steel D ring; contact continues deeper than 12 inches
90	R10	R10-109	244725.300	2003856.900	3.86	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
91	R10	R10-110	244711.200	2003848.500	3.84	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
92	R10	R10-111	244687.800	2003893.200	3.81	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact deeper than 12 inches .
93	R10	R10-112	244706.100	2003863.800	3.76	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
94	R10	R10-113	244709.400	2003848.800	3.74	3	3	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea US Nickel=5 cents.
95	R10	R10-114	244710.554	2003873.170	3.70	5	5	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 1X3 in. heavy steel bar
96	R10	R10-115	244672.870	2003893.173	3.70	8	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea heavy steel 3 in. length of eye stock
97	R10	R10-116	244724.700	2003831.100	3.62	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
98	R10	R10-117	244692.809	2003868.993	3.57	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
99	R10	R10-118	244723.221	2003837.431	3.54	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter
100	R10	R10-119	244704.627	2003874.690	3.53	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum tent stake; contact continues deeper than 12 inches
101	R10	R10-120	244712.755	2003863.172	3.47	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter; contact continues deeper than 12 inches
102	R10	R10-121	244726.815	2003831.768	3.42	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
103	R10	R10-122	244673.100	2003906.400	3.42	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
104	R10	R10-123	244682.400	2003868.600	3.38	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
105	R10	R10-124	244718.768	2003837.072	3.36	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
106	R10	R10-126	244699.500	2003850.300	3.20	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
107	R10	R10-127	244685.700	2003880.000	3.20	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
108	R10	R10-128	244680.600	2003872.500	3.13	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
109	R10	R10-129	244690.200	2003850.600	3.12	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
110	R10	R10-130	244731.300	2003855.700	3.12	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
111	R10	R10-131	244703.142	2003866.790	3.05	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
112	R10	R10-132	244689.900	2003881.500	3.03	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 6 in. length steel tent peg.
113	R11	R11-1	244776.900	2003747.700	1145.47	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Very hot contact deeper than 12 inches
114	R11	R11-2	244777.500	2003749.200	1003.12	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
115	R11	R11-3	244762.839	2003775.765	909.68	0	0				12/12/2002	No	Thursday, December 12, 2002	Large reinforced concrete anchor with chain for floating pier. Contact not removed
116	R11	R11-4	244770.694	2003760.615	834.01	0	0				12/13/2002	No	Friday, December 13, 2002	Anomaly is the aluminum ramp/walk going from the beach to the floating pier anchored to the beach
117	R11	R11-5	244774.800	2003738.700	739.44	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
118	R11	R11-6	244735.800	2003838.000	738.80	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy steel fence T post buried deeper than 12 inches
119	R11	R11-7	244776.300	2003729.100	600.40	12	12	Other			12/12/2002	No	Thursday, December 12, 2002	2 and 1/2 inch steel pipe 20 foot length. Item not removed.
120	R11	R11-8	244774.500	2003742.300	397.49	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
121	R11	R11-9	244771.500	2003791.800	350.72	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
122	R11	R11-10	244738.171	2003835.600	350.15	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 20 in. length of heavy steel threaded stock and 1 ea 20 in. length of fence T post
123	R11	R11-11	244733.100	2003835.000	309.56	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
124	R11	R11-12	244775.100	2003784.900	244.23	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in length of re-bar and contact continues past 12 inches
125	R11	R11-13	244782.300	2003749.800	192.41	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	4 inch Steel nail.
126	R11	R11-14	244750.720	2003829.453	139.58	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated; flag within 18 inches of beach pavilion

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127	R11	R11-15	244771.256	2003780.156	134.37	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 12 in diameter steel/wire ring and contact continues past 12 inches
128	R11	R11-16	244772.817	2003793.333	102.03	0	0				12/12/2002	No	Thursday, December 12, 2002	Beach pavilion within 12 inches of flag
129	R11	R11-17	244767.081	2003770.501	100.36	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
130	R11	R11-18	244782.546	2003747.089	100.15	0	0				12/12/2002	No	Thursday, December 12, 2002	ID not investigated. Contact below erosion control matting
131	R11	R11-19	244737.664	2003821.952	92.49	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
132	R11	R11-20	244764.900	2003807.100	86.50	6	18	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy steel fence T post buried deeper than 18 inches. Item not removed
133	R11	R11-21	244740.749	2003833.669	86.30	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock
134	R11	R11-22	244778.100	2003763.600	85.51	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy aluminum boat cleat and contact continues past 12 inches
135	R11	R11-23	244775.010	2003767.136	83.53	10	40	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy steel fence T post which continues past 40 inches. Item not removed.
136	R11	R11-24	244734.651	2003832.646	80.98	0	0				12/12/2002	No	Thursday, December 12, 2002	Contact not investigated. Contact underneath erosion control matting.
137	R11	R11-25	244734.694	2003845.624	77.37	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
138	R11	R11-26	244774.800	2003733.600	77.21	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
139	R11	R11-27	244760.700	2003806.500	75.81	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea military E-tool [shovel] and contact continues past 12 inches
140	R11	R11-28	244776.300	2003764.200	73.24	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	Multiple steel nail bed and contact continues past 12 inches
141	R11	R11-29	244782.493	2003763.155	62.31	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 556 expended cartridge blank and small aluminum scrap. Contact continues past 12 inches
142	R11	R11-30	244762.984	2003810.988	57.69	0	0				12/12/2002	No	Thursday, December 12, 2002	Not investigated. Flag within 12 inches of beach pavilion
143	R11	R11-31	244781.481	2003771.310	56.20	0	0				12/12/2002	No	Thursday, December 12, 2002	Beach pavilion and metal objects within a foot
144	R11	R11-32	244735.737	2003840.775	51.79	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock
145	R11	R11-33	244777.118	2003752.874	48.53	6	12				12/12/2002	No	Thursday, December 12, 2002	1 dozen steel nails. Contact contact continues deeper than 12 inches
146	R11	R11-34	244776.495	2003736.132	46.44	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
147	R11	R11-35	244778.100	2003779.800	45.68	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 14 in. length of small steel re-bar and contact continues past 12 inches
148	R11	R11-36	244733.767	2003837.294	44.78	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock
149	R11	R11-37	244739.100	2003819.100	40.93	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	Large piece of aluminum clutter and 2 ea 3 in. nails. Contact continues past 12 inches
150	R11	R11-38	244781.737	2003737.850	38.98	12	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
151	R11	R11-39	244748.700	2003826.600	37.60	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	2 ea 3 in. nails and aluminum clutter. Contact continues past 12 inches
152	R11	R11-40	244781.457	2003761.420	37.57	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
153	R11	R11-41	244737.245	2003839.296	34.56	10	10	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of heavy steel threaded stock
154	R11	R11-42	244756.443	2003803.597	32.77	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 2X4 in. heavy steel plate
155	R11	R11-43	244763.584	2003792.552	31.31	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 8 in length of metal conduit; contact continues deeper than 12 inches
156	R11	R11-44	244762.679	2003787.137	31.10	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
157	R11	R11-45	244779.948	2003752.352	30.81	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	14 in. length of a steel fence T post and contact continues past 12 inches
158	R11	R11-46	244772.400	2003774.100	29.82	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
159	R11	R11-47	244740.285	2003817.711	28.90	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	Clutter of nails and contact continues past 12 inches
160	R11	R11-48	244766.941	2003777.959	28.36	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
161	R11	R11-49	244772.255	2003785.919	27.20	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
162	R11	R11-50	244737.300	2003815.800	27.05	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 2 in. nail and contact continues past 12 inches
163	R11	R11-51	244744.500	2003830.200	26.62	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea heavy steel 18 in. length re-bar spike

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
164	R11	R11-52	244777.125	2003783.201	25.99	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 24 in. length of steel stock and contact continues past 12 inches
165	R11	R11-53	244758.900	2003799.900	25.45	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
166	R11	R11-54	244745.037	2003814.188	24.29	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
167	R11	R11-55	244760.847	2003785.897	22.74	2	2	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter
168	R11	R11-56	244780.113	2003767.441	21.20	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
169	R11	R11-57	244741.329	2003819.233	19.53	7	12	Other			12/12/2002	No	Thursday, December 12, 2002	Metal scrap and contact continues past 12 inches
170	R11	R11-58	244779.300	2003728.500	16.12	9	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 piece of aluminum scrap and contact continues past 12 inches.
171	R11	R11-59	244769.400	2003798.700	14.26	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches .
172	R11	R11-60	244764.164	2003788.637	14.10	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter and contact continues past 12 inches
173	R11	R11-61	244733.605	2003827.551	13.52	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
174	R11	R11-62	244782.000	2003765.100	13.45	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 6 in length of chain and 1 ea 10 in length heavy steel tent spike
175	R11	R11-63	244746.104	2003823.277	12.39	7	12	Other	Other	None	12/12/2002	No	Thursday, December 12, 2002	3 in. Projo cartridge partial with base expended. ORS. Contact continues past 12 inches
176	R11	R11-64	244769.700	2003793.900	11.96	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
177	R11	R11-65	244761.300	2003782.500	11.75	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	8 lb. lead brick/weight
178	R11	R11-66	244779.927	2003743.938	11.67	6	6	Other			12/12/2002	No	Thursday, December 12, 2002	3 ea 3 inch steel nails
179	R11	R11-67	244779.600	2003776.200	11.28	6	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 14 in. length of re-bar and contact continues past 12 inches
180	R11	R11-68	244781.806	2003742.220	11.26	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea nail and contact continues past 12 inches
181	R11	R11-69	244743.115	2003832.516	11.23	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches.
182	R11	R11-70	244770.453	2003798.877	10.92	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 8 in. metal strap and contact continues past 12 inches
183	R11	R11-71	244758.022	2003810.924	10.85	4	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea steel horse shoe and 1 ea crushed aluminum can
184	R11	R11-72	244762.540	2003790.747	10.47	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
185	R11	R11-73	244752.222	2003806.120	9.32	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea small steel tent spike
186	R11	R11-74	244769.700	2003775.000	8.73	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
187	R11	R11-75	244763.400	2003805.600	8.42	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter and contact continues past 12 inches
188	R11	R11-76	244765.388	2003784.614	7.64	3	3	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea aluminum can flattened
189	R11	R11-77	244751.271	2003800.922	7.53	2	2	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea aluminum can top
190	R11	R11-78	244778.100	2003756.100	7.24	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
191	R11	R11-79	244777.259	2003744.916	7.02	3	3	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea aluminum can pop top
192	R11	R11-80	244746.989	2003832.060	6.96	7	12	Other			12/12/2002	No	Thursday, December 12, 2002	Several pieces of aluminum clutter
193	R11	R11-81	244773.948	2003775.938	6.91	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 12 in. length of steel re-bar
194	R11	R11-82	244735.200	2003826.900	6.24	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea. 12 in. length small steel rod.
195	R11	R11-83	244739.218	2003824.757	6.12	2	12	Other			12/12/2002	No	Thursday, December 12, 2002	2 ea 3 in. nails; contact continues past 12 inches
196	R11	R11-84	244755.900	2003810.100	6.06	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
197	R11	R11-85	244783.200	2003731.800	5.93	12	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches.
198	R11	R11-86	244776.900	2003760.300	5.79	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
199	R11	R11-87	244770.600	2003767.800	5.67	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
200	R11	R11-88	244774.200	2003760.300	5.66	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 8 in. steel tent peg and contact continues past 12 inches
201	R11	R11-89	244751.400	2003810.400	5.58	4	4	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter
202	R11	R11-90	244750.091	2003810.795	5.50	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	Several pieces of metal scrap and contact continues past 12 inches
203	R11	R11-91	244769.100	2003790.600	5.37	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 12 in. length of chain and contact continues past 12 inches
204	R11	R11-92	244758.000	2003787.300	5.33	0	24				12/12/2002	No	Thursday, December 12, 2002	No find.
205	R11	R11-93	244741.500	2003823.300	5.32	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	2 ea 2 in. nails, and contact continues past 12 inches
206	R11	R11-94	244783.779	2003732.457	5.16	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	10 inch crescent wrench handle and contact continues past 12 inches.
207	R11	R11-95	244772.480	2003753.917	4.99	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
208	R11	R11-96	244745.014	2003804.946	4.96	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
209	R11	R11-97	244758.300	2003796.900	4.88	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
210	R11	R11-98	244738.711	2003833.276	4.84	10	10	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 3X6 inch heavy steel plate
211	R11	R11-99	244759.992	2003812.989	4.78	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
212	R11	R11-100	244779.600	2003763.600	4.69	10	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 10 in length of steel re-bar and contact continues past 12 inches
213	R11	R11-101	244780.200	2003732.100	4.68	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 3 inch steel bar mangled
214	R11	R11-102	244743.255	2003819.995	4.58	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	Several 3 in. steel nails and contact continues past 12 inches
215	R11	R11-103	244740.300	2003825.100	4.56	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
216	R11	R11-104	244773.600	2003770.800	4.54	0	12				12/12/2002	No	Thursday, December 12, 2002	No find.
217	R11	R11-105	244771.186	2003784.179	4.50	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 6 in length of steel re-bar and contact continues past 12 inches
218	R11	R11-106	244739.841	2003807.795	4.42	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. [In surface zone]
219	R11	R11-107	244743.413	2003809.557	3.79	3	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter
220	R11	R11-108	244740.000	2003826.000	3.71	4	12	Other			12/12/2002	No	Thursday, December 12, 2002	2 ea 3 in. steel nails
221	R11	R11-109	244750.488	2003825.887	3.67	5	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 3/8 in. 6 in bolt, 1 ea 3 in steel nail and a small piece of com wire. Contact continues past 12 inches
222	R11	R11-110	244764.600	2003790.900	3.30	8	12	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea 10 in. length of wire rope and contact continues past 12 inches
223	R11	R11-111	244734.534	2003824.104	3.30	0	12				12/12/2002	No	Thursday, December 12, 2002	No find. Contact deeper than 12 inches
224	R6	R6-1	244450.741	2003876.569	52.13	8	8	Other			12/10/2002	No	Tuesday, December 10, 2002	Lid from aluminum can
225	R6	R6-2	244439.704	2003877.077	36.92	12	12				12/10/2002	No	Tuesday, December 10, 2002	Contact the same as R6-4
226	R6	R6-3	244445.758	2003887.091	33.05	0	0	Other			12/10/2002	No	Tuesday, December 10, 2002	3 pieces of aluminum foil in brush
227	R6	R6-4	244439.840	2003878.555	29.75	12	24	Other	Other	None	12/10/2002	No	Tuesday, December 10, 2002	Heavily corroded metal object non OE. Item contacted at 12 in. investigated to 24 in.
228	R6	R6-5	244456.373	2003891.314	22.31	0	12				12/11/2002	No	Wednesday, December 11, 2002	NO FIND. Contact there deeper than 12 in.
229	R6	R6-6	244449.807	2003871.569	15.74	10	10	Other			12/10/2002	No	Tuesday, December 10, 2002	Aluminum can pop top.
230	R6	R6-7	244484.614	2003893.658	14.91	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
231	R6	R6-8	244439.400	2003860.000	14.82	12	12				12/10/2002	No	Tuesday, December 10, 2002	No Find. Contact deeper than 12 inches
232	R6	R6-9	244484.646	2003873.752	13.50	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
233	R6	R6-10	244441.925	2003885.796	9.72	1	10	Other			12/10/2002	No	Tuesday, December 10, 2002	Aluminum foil and beer can
234	R6	R6-11	244444.400	2003885.800	8.03	2	10	Other			12/10/2002	No	Tuesday, December 10, 2002	Several pieces of aluminum foil
235	R6	R6-12	244441.400	2003878.200	7.39	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in
236	R6	R6-13	244443.809	2003885.171	6.45	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
237	R6	R6-14	244443.000	2003885.000	6.30	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
238	R6	R6-15	244474.917	2003884.299	5.67	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
239	R6	R6-16	244448.240	2003868.955	5.66	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
240	R6	R6-17	244473.966	2003884.081	5.36	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
241	R6	R6-18	244444.851	2003859.567	5.17	12	12				12/10/2002	No	Tuesday, December 10, 2002	No Find. Contact deeper than 12 in.
242	R6	R6-19	244443.475	2003887.906	5.01	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
243	R6	R6-20	244469.402	2003878.410	4.85	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact there deeper than 12 in.
244	R6	R6-21	244470.852	2003882.066	4.67	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact there deeper than 12 in.
245	R6	R6-22	244443.600	2003888.600	4.59	8	8	Other			12/10/2002	No	Tuesday, December 10, 2002	1 ea aluminum beer can 2 pieces of aluminum trash
246	R6	R6-23	244442.600	2003879.400	4.50	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
247	R6	R6-24	244469.686	2003880.566	4.25	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact there deeper than 12 in.
248	R6	R6-25	244445.400	2003889.800	4.23	0	10	Other			12/10/2002	No	Tuesday, December 10, 2002	Several pieces of aluminum trash
249	R6	R6-26	244473.600	2003883.000	4.20	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
250	R6	R6-27	244441.417	2003876.511	4.15	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
251	R6	R6-28	244459.871	2003882.877	4.04	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
252	R6	R6-29	244452.973	2003892.361	3.99	6	12	Other			12/11/2002	No	Wednesday, December 11, 2002	35 lb. Solid steel object non-OE
253	R6	R6-30	244458.520	2003882.174	3.96	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
254	R6	R6-31	244441.398	2003875.799	3.90	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12in.
255	R6	R6-32	244485.747	2003875.940	3.90	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.

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	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
304	R8	R8-38	244586.700	2003916.000	10.67	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	6 inch heavy steel bolt
305	R8	R8-39	244592.896	2003914.590	10.04	3	8	Other			12/11/2002	No	Wednesday, December 11, 2002	36 inch length steel rod.
306	R8	R8-40	244580.641	2003899.172	9.90	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
307	R8	R8-41	244594.800	2003913.300	9.38	12	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1ea. heavy steel anchor chain link halve.
308	R8	R8-42	244609.778	2003896.467	9.15	0	8	Other			12/11/2002	No	Wednesday, December 11, 2002	3/4 in. steel shackle.
309	R8	R8-43	244595.337	2003922.275	9.01	8	8	Other			12/12/2002	No	Thursday, December 12, 2002	1 ea. Projo steel nose lift lug.
310	R8	R8-44	244607.303	2003927.278	8.84	8	8	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3/4 inch steel bolt and aluminum trash
311	R8	R8-45	244607.397	2003926.248	8.70	3	12	Other			12/11/2002	No	Wednesday, December 11, 2002	2 ea 3/4 inch steel bolt and 2 ea 556 expended cartridges blanks
312	R8	R8-46	244614.481	2003916.644	8.55	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug
313	R8	R8-47	244605.028	2003905.287	8.26	0	8	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea heavy steel tent spike 10 in. long. Also contact deeper than 12 in.
314	R8	R8-48	244591.229	2003919.223	7.91	4	4	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug.
315	R8	R8-49	244587.300	2003910.600	7.26	3	3	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug.
316	R8	R8-50	244587.293	2003915.000	7.06	8	8	Other			12/11/2002	No	Wednesday, December 11, 2002	155 steel nose lift lug.
317	R8	R8-51	244607.602	2003902.268	6.48	0	9	Other			12/11/2002	No	Wednesday, December 11, 2002	155 projectile lug. ORS
318	R8	R8-52	244590.300	2003913.600	6.47	4	4	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug
319	R8	R8-53	244608.282	2003894.017	6.21	0	6	Other			12/11/2002	No	Wednesday, December 11, 2002	Aluminum can pop top.
320	R8	R8-54	244601.100	2003911.200	6.07	5	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum hex cap and metal scrap
321	R8	R8-55	244604.350	2003922.969	5.94	2	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Several pieces of aluminum trash.
322	R8	R8-56	244600.483	2003901.843	5.86	0	6	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea steel nail 3 in long.
323	R8	R8-57	244585.200	2003901.600	5.72	2	2	Other			12/11/2002	No	Wednesday, December 11, 2002	Metal clutter .5 lb
324	R8	R8-58	244571.674	2003887.519	5.62	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
325	R8	R8-59	244581.600	2003916.300	5.39	6	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Several pieces of aluminum and metal trash.
326	R8	R8-60	244596.623	2003883.589	5.19	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
327	R8	R8-61	244608.076	2003907.825	4.93	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3 inch steel nail
328	R8	R8-62	244609.415	2003879.267	4.52	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
329	R8	R8-63	244607.015	2003908.322	4.48	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
330	R8	R8-64	244610.097	2003880.439	4.15	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
331	R8	R8-65	244604.700	2003898.000	4.07	0	3	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea. steel bolt 3 in. long.
332	R8	R8-66	244606.912	2003892.082	3.90	0	10	Other			12/11/2002	No	Wednesday, December 11, 2002	1 lb. steel eye bolt.
333	R8	R8-67	244600.200	2003892.000	3.81	0	2	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum pop top.
334	R8	R8-68	244604.400	2003918.400	3.76	3	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Small amount of metal clutter.
335	R8	R8-69	244582.169	2003905.585	3.70	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
336	R8	R8-70	244580.402	2003923.466	3.58	4	4	Other			12/11/2002	No	Wednesday, December 11, 2002	2 ea aluminum can pop tops.
337	R8	R8-71	244614.000	2003924.100	3.50	2	2	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3/4 inch steel bolt.
338	R8	R8-72	244591.459	2003923.782	3.50	0	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Small amount of metal clutter.
339	R8	R8-73	244604.937	2003914.305	3.47	3	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Heavy metal clutter and a 3 inch diameter steel disc. Contact continues past 12 in.
340	R8	R8-74	244613.360	2003891.672	3.30	0	6	Other	Other	None	12/11/2002	No	Wednesday, December 11, 2002	556 cartridge expended. ORS
341	R8	R8-75	244602.343	2003914.696	3.26	8	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum can top and a small amount metal clutter.
342	R8	R8-76	244608.809	2003880.989	3.24	1	1	Other			12/11/2002	No	Wednesday, December 11, 2002	Aluminum trash near surface and contact deeper than 12 in.
343	R8	R8-77	244606.418	2003920.762	3.20	2	2	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3/4 inch steel bolt.
344	R8	R8-78	244612.800	2003879.400	3.18	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
345	R8	R8-79	244614.600	2003926.800	3.12	12	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 6 inch steel nail and contact continues past 12 inches
346	R8	R8-80	244582.298	2003921.426	3.09	8	8	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3 inch steel nail.
347	R8	R8-81	244612.500	2003883.600	3.04	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
348	R8	R8-82	244598.277	2003916.964	3.00	3	10	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3/4 inch steel bolt.
349	R8	R8-83	244573.513	2003884.166	3.00	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
350	R8	R8-84	244603.782	2003917.625	3.00	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum can and contact deeper than 12 in.
351	R9	R9-1	244658.350	2003882.232	1057.01	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
352	R9	R9-3	244624.800	2003904.000	570.08	3	3	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 20 in. length, 30 lb. heavy steel I beam

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1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
256	R6	R6-33	244467.152	2003878.894	3.78	0	12				12/11/2002	No	Wednesday, December 11, 2002	No Find. Contact there deeper than 12 in.
257	R6	R6-34	244455.823	2003886.282	3.36	3	8	Other			12/10/2002	No	Tuesday, December 10, 2002	1 dime and 1 nickel=15 cents
258	R6	R6-35	244440.200	2003861.600	3.13	8	8	Other			12/10/2002	No	Tuesday, December 10, 2002	Aluminum can pop top
259	R7	R7-1	244491.815	2003891.083	116.74	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
260	R7	R7-2	244530.891	2003892.595	32.24	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
261	R7	R7-3	244550.688	2003882.446	31.85	2	6	Other			12/11/2002	No	Wednesday, December 11, 2002	2 X 2 in. solid metal plate and aluminum can. Overall burned out trash pit
262	R7	R7-4	244537.045	2003887.537	24.50	0	3	Other			12/11/2002	No	Wednesday, December 11, 2002	Metal and plastic tent peg/spike 8 in. long.
263	R7	R7-5	244496.908	2003878.295	12.39	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
264	R7	R7-6	244513.227	2003862.482	5.75	12	12				12/10/2002	No	Tuesday, December 10, 2002	No find. Contact deeper than 12 in.
265	R7	R7-7	244550.250	2003879.750	3.31	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
266	R7	R7-8	244542.750	2003890.000	3.24	0	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Large piece of wood with nails in it.
267	R8	R8-1	244578.548	2003918.408	1761.69	0	10	Other			12/11/2002	No	Wednesday, December 11, 2002	1 section of steel Marsh Matting 2 X 4 feet.
268	R8	R8-2	244606.386	2003885.161	391.08	3	4	Other			12/11/2002	No	Wednesday, December 11, 2002	50 lb. steel rail road track 24 in. length.
269	R8	R8-3	244610.954	2003916.684	303.21	2	12	Other			12/11/2002	No	Wednesday, December 11, 2002	12"X12" section of steel marsh matting and 1 ea 3/4 inch hex nut
270	R8	R8-4	244602.900	2003910.000	140.77	1	3	Other			12/11/2002	No	Wednesday, December 11, 2002	2 foot length of heavy steel fence T post
271	R8	R8-5	244613.400	2003919.000	125.00	2	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug at 2 in depth and contact continues past 12 in.
272	R8	R8-6	244609.799	2003914.039	124.03	3	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 2 foot length of heavy steel angle stock.
273	R8	R8-7	244614.590	2003920.928	118.74	1	1	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea projectile shipping container lid
274	R8	R8-8	244585.501	2003884.704	75.63	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find.
275	R8	R8-9	244595.463	2003893.123	48.48	0	4	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 14 inch steel bolt.
276	R8	R8-10	244589.771	2003915.548	45.15	2	10	Other			12/11/2002	No	Wednesday, December 11, 2002	5 ea. 155 steel nose lift lugs.
277	R8	R8-11	244596.177	2003890.614	28.74	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
278	R8	R8-12	244577.294	2003894.015	28.36	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
279	R8	R8-13	244604.700	2003892.900	27.90	0	12	Other			12/11/2002	No	Wednesday, December 11, 2002	1 lb. piece metal fence post plus more deeper than 12 in.
280	R8	R8-14	244599.574	2003906.778	27.17	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
281	R8	R8-15	244579.197	2003897.444	25.79	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
282	R8	R8-16	244579.714	2003904.878	25.68	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
283	R8	R8-17	244592.403	2003916.347	25.27	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 155 steel nose lift lug.
284	R8	R8-18	244613.037	2003921.815	21.84	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	2 ea 155 steel nose lift lugs.
285	R8	R8-19	244609.800	2003900.400	21.62	0	2	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea steel nail and 2 ea aluminum cans
286	R8	R8-20	244603.263	2003887.220	21.45	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in. Very hot contact.
287	R8	R8-21	244600.840	2003889.261	21.32	6	10	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 10 in. steel Navy Boatswain Mate paint scraper
288	R8	R8-22	244582.826	2003917.803	21.32	7	7	Other			12/11/2002	No	Wednesday, December 11, 2002	155 steel nose lift lug.
289	R8	R8-23	244580.100	2003892.600	20.83	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
290	R8	R8-24	244611.522	2003920.306	20.30	1	10	Other			12/11/2002	No	Wednesday, December 11, 2002	2 ea 155 steel nose lift lugs.
291	R8	R8-25	244613.100	2003897.100	19.86	3	10	Other			12/11/2002	No	Wednesday, December 11, 2002	2 lb. of metal scrap and 1 small key
292	R8	R8-26	244584.282	2003892.342	18.91	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
293	R8	R8-27	244584.000	2003916.300	18.13	4	4	Other			12/11/2002	No	Wednesday, December 11, 2002	Small steel 1/2 inch band.
294	R8	R8-28	244551.597	2003882.383	17.16	0	12	Other			12/11/2002	No	Wednesday, December 11, 2002	Burned out trash pit with small metal clutter
295	R8	R8-29	244598.556	2003886.683	15.01	0	7	Other	Other	None	12/11/2002	No	Wednesday, December 11, 2002	1 ea grenade spoon. ORS
296	R8	R8-30	244603.737	2003895.632	14.66	3	10	Other	Other	None	12/11/2002	No	Wednesday, December 11, 2002	1 ea piece of aluminum scrap and 1 ea 7.62 cartridge blank expended.
297	R8	R8-31	244596.652	2003887.965	14.51	0	8	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum Pepsi can.
298	R8	R8-32	244578.843	2003907.452	13.70	0	5	Other			12/11/2002	No	Wednesday, December 11, 2002	Aluminum can pop top.
299	R8	R8-33	244605.487	2003927.455	13.46	10	10	Other			12/11/2002	No	Wednesday, December 11, 2002	2 ea 3/4 inch steel bolts.
300	R8	R8-34	244600.771	2003916.720	12.28	8	8	Other			12/11/2002	No	Wednesday, December 11, 2002	155 steel nose lift lug.
301	R8	R8-35	244579.500	2003899.200	11.70	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 in.
302	R8	R8-36	244590.705	2003890.892	11.10	0	8	Other			12/11/2002	No	Wednesday, December 11, 2002	Aluminum can bottom.
303	R8	R8-37	244582.959	2003919.632	10.69	9	9	Other			12/11/2002	No	Wednesday, December 11, 2002	2 inch piece of steel pipe.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
353	R9	R9-6	244633.610	2003905.913	320.61	5	12	Other			12/16/2002	No	Monday, December 16, 2002	24 in. length of 4 in. diameter steel pipe; contact continues deeper than inches
354	R9	R9-12	244657.500	2003894.100	174.97	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 lb. of steel scrap; contact continues deeper than 12 inches
355	R9	R9-13	244667.754	2003901.435	166.26	2	12	Other			12/16/2002	No	Monday, December 16, 2002	10 diameter concrete filled corrugated heavy steel pipe extending deeper than 12 inches. Anomaly not removed.
356	R9	R9-14	244636.500	2003899.200	145.93	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 24 in. length of steel pipe
357	R9	R9-15	244614.876	2003920.121	129.81	0	0				12/11/2002	No	Wednesday, December 11, 2002	Same contact as R8-7
358	R9	R9-20	244648.397	2003910.003	67.49	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 16 in. length of heavy steel fence T post; contact continues deeper than 12 inches
359	R9	R9-23	244652.944	2003910.410	48.03	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 14 in. length of heavy steel re-bar; contact continues deeper than 12 inches
360	R9	R9-29	244614.562	2003884.165	42.32	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 inches
361	R9	R9-30	244669.931	2003912.421	42.13	1	12	Other			12/16/2002	No	Monday, December 16, 2002	3/4 in. diameter heavy steel re-bar extending deeper than 12 inches. Anomaly not removed.
362	R9	R9-31	244645.983	2003880.576	41.66	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
363	R9	R9-32	244621.500	2003913.600	41.32	4	12	Other			12/16/2002	No	Monday, December 16, 2002	2 ea 2 in diameter heavy steel projo nose lift lugs
364	R9	R9-36	244632.367	2003886.173	37.36	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
365	R9	R9-40	244660.800	2003892.300	35.57	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
366	R9	R9-42	244670.281	2003873.078	32.35	8	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 10X4 in. steel plate; contact continues deeper than 12 inches
367	R9	R9-45	244630.879	2003880.456	31.45	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
368	R9	R9-46	244654.304	2003882.519	30.58	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
369	R9	R9-49	244636.670	2003916.411	30.31	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea. 12 in. length of heavy steel re-bar and 2 ea 556 expended blank cartridges
370	R9	R9-52	244626.900	2003914.500	29.48	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 24 in. length of heavy steel fence T post.
371	R9	R9-58	244619.700	2003893.800	23.21	2	8	Other			12/11/2002	No	Wednesday, December 11, 2002	Several pieces of metal scrap
372	R9	R9-63	244616.753	2003881.085	20.46	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact is number 146 on equipment test area
373	R9	R9-67	244659.021	2003877.109	18.92	8	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea heavy steel 1 inch shackle with pin.
374	R9	R9-69	244649.537	2003884.800	18.57	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
375	R9	R9-70	244636.047	2003875.168	17.95	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact same as number 43 on equipment check plot
376	R9	R9-71	244653.000	2003871.000	17.38	5	12	Other			12/16/2002	No	Monday, December 16, 2002	30 in. length of steel angle stock.
377	R9	R9-78	244667.100	2003874.900	15.09	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea. 12 in. length of steel stock; contact continues deeper than 12 inches
378	R9	R9-79	244652.883	2003902.084	15.07	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 20 in. length of heavy steel re-bar and 1 ea heavy steel nut; contact continues deeper than 12 inches
379	R9	R9-85	244614.710	2003915.819	14.16	0	0				12/11/2002	No	Wednesday, December 11, 2002	Same as R8-46
380	R9	R9-86	244672.382	2003871.433	13.68	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
381	R9	R9-87	244621.800	2003881.800	13.65	5	5	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 556 expended cartridge blank
382	R9	R9-90	244645.800	2003883.000	12.84	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
383	R9	R9-94	244623.112	2003889.600	11.58	2	4	Other			12/11/2002	No	Wednesday, December 11, 2002	Several aluminum can pop tops
384	R9	R9-96	244619.382	2003924.031	11.31	6	6	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in. heavy steel bolt.
385	R9	R9-97	244624.114	2003923.353	11.01	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
386	R9	R9-98	244652.837	2003875.429	11.01	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 6X8 inch heavy steel plate 1/2 in. thick.
387	R9	R9-99	244653.623	2003870.043	10.83	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
388	R9	R9-101	244634.582	2003902.019	10.63	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 1/2 in. heavy steel shackle with pin
389	R9	R9-103	244643.544	2003906.606	10.36	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 4 in length of heavy steel re-bar and 3 ea 3 in steel nails; contact continues deeper than 12 inches
390	R9	R9-106	244663.200	2003902.800	8.95	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
391	R9	R9-107	244644.900	2003916.300	8.91	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 10 in. length 3/8 in. steel bolt and aluminum clutter
392	R9	R9-108	244664.849	2003915.180	8.71	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
393	R9	R9-110	244613.785	2003895.790	8.27	4	4	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea steel padlock

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
394	R9	R9-112	244632.906	2003895.491	8.05	3	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter at 3 inches
395	R9	R9-114	244633.054	2003915.038	7.71	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
396	R9	R9-115	244633.173	2003876.425	7.41	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact same as number 130 on equipment check area
397	R9	R9-116	244666.500	2003866.200	7.38	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
398	R9	R9-118	244640.590	2003896.904	7.27	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 12 inch length of steel wire and 1 ea 8 in. length of small chain; contact continues deeper than 12 inches
399	R9	R9-122	244662.600	2003878.800	7.08	5	12	Other			12/16/2002	No	Monday, December 16, 2002	3 lb. heavy steel non-OE object.
400	R9	R9-123	244669.800	2003870.700	6.96	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in. length steel bolt; contact continues deeper than 12 inches
401	R9	R9-127	244658.587	2003913.894	6.83	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
402	R9	R9-128	244626.395	2003878.208	6.81	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact is number 32 on equipment check grid
403	R9	R9-129	244622.247	2003890.442	6.73	2	2	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea aluminum can
404	R9	R9-130	244662.938	2003875.984	6.69	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea heavy steel chipping hammer head.
405	R9	R9-132	244628.700	2003907.600	6.57	5	12	Other			12/16/2002	No	Monday, December 16, 2002	2 ea 3 in heavy steel bolts and 2 ea expended 556 cartridge blanks.
406	R9	R9-136	244622.067	2003916.301	6.34	6	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in length of heavy steel angle stock
407	R9	R9-142	244644.352	2003895.625	6.17	4	12	Other			12/16/2002	No	Monday, December 16, 2002	2 ea 3 in. long steel bolts at 3 inches; contact continues deeper than 12 inches
408	R9	R9-144	244650.921	2003917.538	6.06	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Multiple pieces of aluminum clutter
409	R9	R9-145	244619.400	2003885.100	6.06	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 inches
410	R9	R9-146	244657.800	2003907.000	6.02	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 4 in. steel bolt; contact continues deeper than 12 inches
411	R9	R9-148	244637.494	2003893.960	5.97	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in. steel nail; contact continues deeper than 12 inches
412	R9	R9-154	244628.544	2003877.898	5.55	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact same as number 14 on equipment check area
413	R9	R9-155	244613.888	2003890.520	5.52	0	0				12/11/2002	No	Wednesday, December 11, 2002	Same contact as dug on R8-74.
414	R9	R9-156	244660.546	2003869.597	5.49	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
415	R9	R9-157	244623.070	2003892.836	5.46	2	8	Other			12/11/2002	No	Wednesday, December 11, 2002	Several pieces of aluminum scrap
416	R9	R9-163	244665.610	2003865.524	5.33	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
417	R9	R9-167	244620.000	2003882.700	5.10	0	12				12/11/2002	No	Wednesday, December 11, 2002	No find. Contact deeper than 12 inches
418	R9	R9-171	244665.834	2003876.195	5.01	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter; contact continues deeper than 12 inches
419	R9	R9-191	244639.848	2003881.058	4.48	8	12	Other			12/16/2002	No	Monday, December 16, 2002	12 in. length 1X4 in. board with nails in it.
420	R9	R9-197	244671.505	2003879.022	4.37	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
421	R9	R9-200	244658.546	2003918.215	4.22	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 4 in. steel nail; contact continues deeper than 12 inches.
422	R9	R9-203	244615.038	2003886.897	4.07	5	6	Other			12/11/2002	No	Wednesday, December 11, 2002	Several pieces of aluminum scrap and a steel nail
423	R9	R9-204	244626.541	2003883.769	4.04	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
424	R9	R9-208	244619.400	2003889.300	4.02	10	10	Other			12/11/2002	No	Wednesday, December 11, 2002	1 ea 3 inch steel bolt
425	R9	R9-213	244619.700	2003899.200	3.90	6	6	Other			12/11/2002	No	Wednesday, December 11, 2002	3 inch length of steel stock and 1 ea 556 expended cartridge blank
426	R9	R9-217	244637.453	2003891.867	3.81	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
427	R9	R9-218	244630.321	2003877.665	3.80	0	0				12/11/2002	No	Wednesday, December 11, 2002	Contact same as number 208 on equipment check area
428	R9	R9-224	244614.980	2003922.830	3.69	3	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter at 3 inches
429	R9	R9-229	244671.737	2003903.013	3.61	0	12				12/16/2002	No	Monday, December 16, 2002	No Find. Anomaly contact continues deeper than 12 inches.
430	R9	R9-242	244664.952	2003908.826	3.50	5	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter; contact continues deeper than 12 inches
431	R9	R9-248	244648.214	2003921.139	3.44	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Several pieces of aluminum clutter at 4 inches
432	R9	R9-251	244672.454	2003909.652	3.41	3	12	Other			12/16/2002	No	Monday, December 16, 2002	Old steel razor blade dispenser part.
433	R9	R9-252	244636.615	2003923.091	3.41	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 762 expended cartridge and aluminum clutter
434	R9	R9-253	244653.900	2003921.100	3.41	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea expended 556 cartridge blank at 3 inches
435	R9	R9-261	244629.000	2003924.700	3.32	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 556 expended cartridge blank; contact continues deeper past 12 inches
436	R6	R6-GAP1	0.000	0.000		2	12	Other			12/10/2002	No	Tuesday, December 10, 2002	Several pieces of aluminum MRE paper trash buried
437	R8	R8-Gap1	0.000	0.000		0	4	Other			12/11/2002	No	Wednesday, December 11, 2002	Aluminum trash.
438	R7	R7-Gap1	0.000	0.000		0	4	Other			12/11/2002	No	Wednesday, December 11, 2002	Small clutter trash.

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
439	R11	R11-Gap 1	0.000	0.000		6	12	Other			12/12/2002	No	Thursday, December 12, 2002	Aluminum clutter and contact continues past 12 inches
440	B1	B1-1	246918.300	2004243.300	570.53	0	12	Other	Other	None	12/13/2002	No	Friday, December 13, 2002	1 ea. 762 cartridge blank expended; contact continues deeper than 12 inches
441	B1	B1-2	246935.700	2004264.900	540.29	2	6	Other			12/13/2002	No	Friday, December 13, 2002	Heavy angle steel frame at 25 pounds
442	B1	B1-3	246973.200	2004297.300	464.39	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
443	B1	B1-4	246965.700	2004286.500	111.73	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
444	B1	B1-5	246970.200	2004291.000	72.45	12	12	Other			12/13/2002	No	Friday, December 13, 2002	2 inch diameter heavy steel wire rope; same as ID B1-16
445	B1	B1-6	246937.510	2004256.374	59.83	2	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 8 in. steel bolt with nut at 2 inches
446	B1	B1-7	246926.021	2004248.595	23.60	5	12	Other			12/13/2002	No	Friday, December 13, 2002	Several pieces of metal trash
447	B1	B1-8	246973.436	2004293.695	18.70	2	12	Other			12/13/2002	No	Friday, December 13, 2002	Aluminum can top at 2 inches
448	B1	B1-9	246967.500	2004293.700	13.93	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
449	B1	B1-10	246954.000	2004273.900	10.68	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
450	B1	B1-11	246954.000	2004274.800	10.45	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
451	B1	B1-12	246972.233	2004294.861	10.40	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
452	B1	B1-13	246975.516	2004297.769	10.09	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
453	B1	B1-14	246922.226	2004245.517	7.64	6	12	Other			12/13/2002	No	Friday, December 13, 2002	Small metal clutter
454	B1	B1-15	246973.100	2004291.976	6.49	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
455	B1	B1-16	246970.378	2004293.082	6.00	12	12	Other			12/13/2002	No	Friday, December 13, 2002	2 inch diameter heavy steel wire rope [Line]; same as ID B1-5
456	B1	B1-17	246937.000	2004270.754	5.60	5	12	Other			12/13/2002	No	Friday, December 13, 2002	Large hot rock.
457	B1	B1-18	246954.937	2004272.233	5.20	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
458	B1	B1-19	246966.094	2004284.544	4.97	2	12	Other			12/13/2002	No	Friday, December 13, 2002	Aluminum can top at 2 inches
459	B1	B1-20	246949.800	2004271.500	4.64	0	12	Other			12/13/2002	No	Friday, December 13, 2002	1X4 in. 48 inch length of wood with several nails in it on surface at the flag
460	B1	B1-21	246967.014	2004283.821	4.07	5	12	Other			12/13/2002	No	Friday, December 13, 2002	Aluminum clutter at 5 inches
461	B1	B1-22	246955.695	2004275.883	3.80	3	12	Other			12/13/2002	No	Friday, December 13, 2002	Aluminum can top at 3 inches
462	B1	B1-23	246949.456	2004273.206	3.45	4	12	Other			12/13/2002	No	Friday, December 13, 2002	Aluminum can top at 4 inches
463	B1	B1-24	246938.397	2004262.996	3.27	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
464	B1	B1-25	246937.200	2004269.100	3.02	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
465	B2	B2-1	247027.026	2004312.700	247.25	5	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 18 in length of heavy steel angle
466	B2	B2-2	247013.208	2004310.268	33.60	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
467	B2	B2-3	247004.100	2004282.600	32.74	0	12				12/16/2002	No	Monday, December 16, 2002	No find. ID flag located in the surf zone.
468	B2	B2-4	246996.000	2004309.600	8.65	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
469	B2	B2-5	247037.400	2004315.300	8.42	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
470	B2	B2-6	247013.100	2004317.100	8.07	4	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 3/8 in. 3 in. length steel bolt.
471	B2	B2-7	247028.954	2004311.622	7.50	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
472	B2	B2-8	247023.000	2004321.600	6.42	3	12	Other			12/13/2002	No	Friday, December 13, 2002	1 complete steel gun cleaning rod in 4 sections and aluminum scrap.
473	B2	B2-9	247036.200	2004316.500	5.71	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
474	B2	B2-10	246997.200	2004310.500	5.53	5	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 2 in diameter steel spanner ring; contact continues deeper than 12 inches
475	B2	B2-11	246996.900	2004302.100	5.23	4	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 556 partial cartridge expended
476	B2	B2-12	247022.100	2004316.500	5.20	6	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea 3/8 inch 3 in. length steel bolt at 6 inches
477	B2	B2-13	247025.100	2004313.200	3.48	9	12	Other			12/13/2002	No	Friday, December 13, 2002	1 ea heavy aluminum belt buckle
478	B2	B2-14	247011.300	2004314.700	3.30	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
479	B2	B2-15	246987.600	2004293.700	3.12	0	12				12/13/2002	No	Friday, December 13, 2002	No find.
480	B2	B2-16	247012.500	2004320.100	3.01	0	12				12/13/2002	No	Friday, December 13, 2002	No find. Contact continues deeper than 12 inches.
481	B3	B3-1	247071.657	2004320.418	28.05	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
482	B3	B3-3	247095.900	2004331.500	17.00	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
483	B3	B3-4	247100.446	2004334.343	15.50	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
484	B3	B3-6	247056.000	2004319.200	10.04	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
485	B3	B3-7	247095.327	2004327.525	8.40	8	12	Other			12/16/2002	No	Monday, December 16, 2002	6 in. length of 1 in. diameter heavy steel stock.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
486	B3	B3-8	247082.887	2004333.321	7.25	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
487	B3	B3-9	247096.135	2004330.078	7.21	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum clutter at 4 inches
488	B3	B3-10	247062.900	2004319.500	7.10	3	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea brass key at 3 in.; Contact continues deeper than 12 inches.
489	B3	B3-12	247060.448	2004326.754	6.00	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
490	B3	B3-13	247094.428	2004331.824	6.00	8	12	Other			12/16/2002	No	Monday, December 16, 2002	Several pieces of large aluminum clutter at 8 inches
491	B3	B3-15	247040.222	2004315.552	5.37	12	12	Signal	Other	None	12/16/2002	No	Monday, December 16, 2002	1 ea expended aluminum signal flare.
492	B3	B3-16	247094.700	2004320.400	4.54	0	12				12/16/2002	No	Monday, December 16, 2002	No find.
493	B3	B3-18	247044.013	2004317.780	4.03	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 in. diameter heavy steel stock 8 inches long.
494	B4	B4-1	247135.229	2004331.500	387.50	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
495	B4	B4-2	247116.895	2004328.800	198.94	0	12				12/16/2002	No	Monday, December 16, 2002	No find. Contact continues deeper than 12 inches.
496	B4	B4-4	247114.547	2004336.300	115.93	10	12	Other			12/16/2002	No	Monday, December 16, 2002	24 in. length of heavy galvanized steel angle spike.
497	B4	B4-5	247107.001	2004331.500	60.59	12	12	Other			12/16/2002	No	Monday, December 16, 2002	30 in. length of heavy steel fence T post.
498	B4	B4-7	247116.392	2004333.300	45.92	8	12	Other			12/16/2002	No	Monday, December 16, 2002	Heavy steel fence T post extending deeper than 12 inches. Anomaly not removed.
499	B4	B4-8	247125.615	2004333.450	35.88	8	12	Other			12/16/2002	No	Monday, December 16, 2002	2 in heavy steel shackle with pin.
500	B4	B4-10	247123.546	2004332.700	29.06	12	12	Other			12/16/2002	No	Monday, December 16, 2002	32 in. length of heavy steel fence T post.
501	B4	B4-11	247111.808	2004340.800	18.35	5	12	Other			12/16/2002	No	Monday, December 16, 2002	1 piece of heavy metal bar stock; Contact continues deeper than 12 inches.
502	B4	B4-13	247116.895	2004343.650	16.24	4	12	Other			12/16/2002	No	Monday, December 16, 2002	Aluminum and metal clutter at 4 inches
503	B4	B4-14	247128.801	2004332.100	15.99	9	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 3 in diameter heavy steel plate.
504	B4	B4-16	247146.017	2004335.100	8.34	6	12	Other			12/16/2002	No	Monday, December 16, 2002	24 in length of 1 in. heavy steel bar stock.
505	B4	B4-17	247133.105	2004337.200	4.89	4	12	Other			12/16/2002	No	Monday, December 16, 2002	1 ea 556 expended cartridge blank at 4 inches; Contact continues deeper than 12 inches.
506	B6	B6-1	247269.600	2004340.800	260.95	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Long length of heavy steel I beam extending deeper than 12 inches. Anomaly not removed
507	B6	B6-2	247272.000	2004346.200	127.03	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea heavy steel ship deck padeye 15 lbs.
508	B6	B6-4	247254.638	2004344.645	48.21	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 20 lb. heavy steel ship deck padeye
509	B6	B6-5	247252.500	2004333.000	48.02	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
510	B6	B6-6	247268.893	2004337.087	38.71	0	12	Other			12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
511	B6	B6-7	247265.700	2004342.600	33.68	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	30 in. length of heavy steel fence T post; Contact continues deeper than 12 inches.
512	B6	B6-8	247270.561	2004334.286	27.89	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
513	B6	B6-10	247249.825	2004341.454	24.40	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 in. diameter heavy steel stock extending deeper than 12 inches. Anomaly not removed.
514	B6	B6-11	247271.047	2004338.225	22.39	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
515	B6	B6-13	247273.362	2004345.319	18.88	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea piece of metal scrap; Contact continues deeper than 12 inches.
516	B6	B6-14	247275.520	2004342.879	17.00	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 3 in. steel hex bolt.
517	B6	B6-16	247279.500	2004339.000	11.34	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
518	B6	B6-17	247263.406	2004343.819	10.06	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
519	B6	B6-19	247247.107	2004333.050	8.20	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
520	B6	B6-20	247280.100	2004352.500	8.06	5	12	Other	Other	None	12/17/2002	No	Tuesday, December 17, 2002	1 ea expended gun flare in two pieces.
521	B6	B6-22	247275.116	2004341.345	6.50	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	30 in length of heavy steel re-bar.
522	B6	B6-23	247229.493	2004339.665	6.09	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
523	B6	B6-25	247237.542	2004341.968	4.86	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
524	B6	B6-26	247281.600	2004325.800	4.37	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
525	B7	B7-2	247289.048	2004336.372	50.75	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
526	B7	B7-3	247285.500	2004368.100	42.04	0	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Heavy metal object extending deeper than 12 inches. Anomaly not removed

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
527	B7	B7-5	247308.646	2004334.197	15.08	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
528	B7	B7-6	247343.756	2004343.190	14.33	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
529	B7	B7-8	247285.094	2004364.681	10.91	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	30 in length of heavy steel re-bar.
530	B7	B7-9	247306.261	2004341.662	9.92	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
531	B7	B7-11	247286.554	2004356.926	8.39	0	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Same as ID B7-14. 20 in length heavy steel spike.
532	B7	B7-12	247304.140	2004338.457	7.27	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
533	B7	B7-14	247286.100	2004356.100	6.61	0	10	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 20 in. length heavy steel spike.
534	B7	B7-15	247313.553	2004321.596	6.27	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
535	B7	B7-16	247291.074	2004343.567	6.01	6	6	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 6X8 in. heavy steel plate.
536	B7	B7-17	247313.400	2004322.500	5.90	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
537	B7	B7-18	247285.465	2004374.944	5.50	7	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Several pieces of lightweight metal scrap; Contact continues deeper than 12 inches.
538	B7	B7-20	247285.475	2004378.143	4.74	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
539	B7	B7-21	247286.358	2004351.015	4.65	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	2 in. diameter projo nose heavy steel lift lug.
540	B7	B7-23	247288.687	2004340.217	4.16	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
541	B5	B5-1	247179.086	2004339.997	405.56	0	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Very large extremely heavy steel object. Non OE. Anomaly not removed
542	B5	B5-2	247176.370	2004339.664	255.96	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Large amount of heavy metal scrap. Contact continues deeper than 12 inches.
543	B5	B5-3	247194.300	2004346.800	218.78	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	18 lbs. of heavy steel scrap.
544	B5	B5-4	247189.938	2004344.084	157.50	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	20 lbs. of heavy steel scrap.
545	B5	B5-5	247183.982	2004343.657	99.80	9	12	Other			12/17/2002	No	Tuesday, December 17, 2002	36 in. length of heavy steel re-bar; Contact continues deeper than 12 inches.
546	B5	B5-6	247212.900	2004340.800	75.47	8	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 chunk of aluminum scrap; Contact continues deeper than 12 inches.
547	B5	B5-7	247192.800	2004355.500	70.00	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
548	B5	B5-8	247194.300	2004356.400	67.78	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
549	B5	B5-9	247221.000	2004343.500	53.82	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
550	B5	B5-10	247200.795	2004342.133	43.02	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
551	B5	B5-11	247187.812	2004345.219	26.48	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
552	B5	B5-12	247216.800	2004343.500	21.00	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
553	B5	B5-13	247194.000	2004348.900	20.26	8	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 18 in. length of heavy steel re-bar
554	B5	B5-14	247180.200	2004338.700	14.84	8	12	Other			12/17/2002	No	Tuesday, December 17, 2002	36 in. length of heavy steel re-bar.
555	B5	B5-15	247179.395	2004338.645	13.50	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
556	B5	B5-16	247188.900	2004339.000	11.33	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
557	B5	B5-17	247203.300	2004340.200	10.72	9	12	Other			12/18/2002	No	Wednesday, December 18, 2002	5 lb. heavy steel object. Non OE.
558	B5	B5-18	247167.000	2004338.700	9.95	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	36 in. length of heavy steel re-bar laying horizontal.
559	B5	B5-19	247166.572	2004337.900	9.53	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Same as ID B5-18. 36 in. length of heavy steel re-bar.
560	B5	B5-20	247172.218	2004333.864	7.77	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
561	B5	B5-21	247182.589	2004342.787	7.50	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 heavy steel chain hook.
562	B5	B5-22	247183.061	2004339.710	6.85	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
563	B5	B5-23	247192.500	2004351.600	6.71	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
564	B5	B5-24	247215.900	2004338.700	6.16	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
565	B5	B5-25	247170.300	2004335.400	5.93	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
566	B5	B5-26	247194.900	2004350.100	5.60	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
567	B5	B5-27	247202.786	2004344.482	4.67	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
568	B5	B5-28	247215.615	2004340.077	4.53	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
569	B5	B5-29	247171.500	2004332.100	3.82	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
570	B5	B5-30	247198.095	2004337.173	3.70	12	12	Other			12/18/2002	No	Wednesday, December 18, 2002	8 in. length of heavy steel chain.
571	B5	B5-31	247220.700	2004339.000	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
572	B5	B5-32	247206.860	2004345.705	3.50	7	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 pair of 8 in. steel pliers.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
573	B5	B5-33	247162.800	2004338.700	3.47	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 4 inches
574	B5	B5-34	247164.000	2004335.400	3.44	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
575	B5	B5-35	247191.900	2004343.500	3.30	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
576	B5	B5-36	247193.100	2004350.700	3.30	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find. Contact continues deeper than 12 inches.
577	B9	B9-1	247432.282	2004325.923	57.94	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
578	B9	B9-2	247450.433	2004330.886	58.15	10	12	Other			12/18/2002	No	Wednesday, December 18, 2002	48 in. length of heavy steel wire rope/cable with an eye loop.
579	B9	B9-3	247444.942	2004334.447	29.69	5	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 5 inches.
580	B9	B9-4	247440.900	2004317.700	21.45	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
581	B9	B9-5	247457.287	2004320.917	7.63	10	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Steel/metal military comms reel crank handle.
582	B9	B9-6	247457.602	2004340.612	6.00	3	12				12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 3 inches
583	B9	B9-7	247452.349	2004331.297	5.90	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea 2 in. length steel bolt.
584	B9	B9-8	247450.367	2004328.350	4.61	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea 3 in. steel nail at 3 inches; Contact continues deeper than 12 inches.
585	B9	B9-9	247458.172	2004341.620	4.50	5	12				12/18/2002	No	Wednesday, December 18, 2002	5 ea aluminum cans at 5 inches in a group.
586	B9	B9-10	247451.700	2004328.500	4.40	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	2 ea steel vehicle lug nuts.
587	B9	B9-11	247448.400	2004321.900	3.79	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
588	B9	B9-12	247413.149	2004316.886	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
589	B9	B9-13	247411.934	2004317.045	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
590	B9	B9-14	247414.907	2004318.349	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
591	B9	B9-15	247458.878	2004342.633	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
592	B9	B9-16	247410.825	2004322.071	3.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
593	B9	B9-17	247445.358	2004321.472	3.50	5	12				12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 5 inches
594	B9	B9-18	247413.900	2004316.800	3.37	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
595	B9	B9-19	247413.900	2004318.000	3.25	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
596	B9	B9-20	247410.000	2004317.400	3.12	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
597	B9	B9-21	247413.000	2004318.300	3.07	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
598	B10	B10-1	247507.262	2004306.020	14.00	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
599	B10	B10-2	247520.360	2004307.538	12.00	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum French beef and potatoe 300 gram military MRE can dated 1997 at 2 inches. Empty.
600	B10	B10-3	247519.240	2004297.894	6.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
601	B10	B10-4	247521.500	2004297.223	5.90	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
602	B10	B10-5	247520.100	2004297.600	5.78	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
603	B10	B10-6	247518.000	2004298.200	3.41	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
604	R03	R03-1	244192.411	2003758.953	43.81	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
605	R03	R03-2	244217.472	2003770.778	42.19	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
606	R03	R03-3	244229.100	2003763.900	32.21	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
607	R03	R03-4	244238.388	2003776.963	5.50	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
608	R03	R03-5	244220.760	2003777.685	5.44	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
609	R03	R03-6	244213.800	2003766.300	5.20	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
610	R03	R03-7	244241.213	2003779.495	4.37	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
611	R03	R03-8	244241.299	2003778.296	4.15	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
612	R03	R03-9	244226.100	2003769.600	4.06	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
613	R03	R03-11	244219.855	2003776.417	3.50	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
614	R03	R03-13	244182.944	2003748.240	3.25	0	8	Other			12/17/2002	No	Tuesday, December 17, 2002	Bundle of chicken fence wire.
615	R03	R03-15	244229.400	2003782.200	3.25	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
616	R4	R4-1	244294.732	2003840.053	618.97	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Large heavy metal object and scrap extending deeper than 12 inches. Anomaly not removed
617	R4	R4-2	244268.100	2003800.800	373.05	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
618	R4	R4-3	244269.300	2003802.000	292.83	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
619	R4	R4-4	244302.179	2003840.856	46.98	9	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea heavy steel pipe hanger.
620	R4	R4-5	244286.400	2003827.800	44.56	8	12	Other			12/17/2002	No	Tuesday, December 17, 2002	20 in. length of heavy steel 1 1/2 diameter stock

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
621	R4	R4-6	244287.300	2003825.400	39.65	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
622	R4	R4-7	244291.800	2003827.800	22.22	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	36 in. length of heavy steel strap.
623	R4	R4-8	244306.200	2003836.200	15.19	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
624	R4	R4-9	244284.300	2003824.500	14.61	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
625	R4	R4-10	244289.100	2003830.200	14.57	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 4 inches
626	R4	R4-11	244303.800	2003841.000	11.10	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
627	R4	R4-12	244304.559	2003840.315	10.54	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
628	R4	R4-13	244278.300	2003822.700	8.80	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
629	R4	R4-14	244278.378	2003821.510	8.21	10	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 in diameter 12 in. long heavy steel re-bar.
630	R4	R4-15	244278.087	2003819.637	7.29	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	12 inch length heavy steel spike laying horizontal.
631	R4	R4-16	244305.000	2003838.600	6.67	2	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 2 inches
632	R4	R4-17	244290.000	2003826.600	6.47	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
633	R4	R4-18	244271.081	2003801.713	6.43	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
634	R4	R4-19	244300.800	2003835.300	6.42	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Several pieces of metal clutter
635	R4	R4-20	244297.800	2003823.900	6.34	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
636	R4	R4-21	244301.100	2003834.700	6.06	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
637	R4	R4-22	244297.200	2003824.800	5.71	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
638	R4	R4-23	244283.700	2003827.500	5.46	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
639	R4	R4-24	244286.400	2003833.500	5.28	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 3 in. steel nail at 5 inches
640	R4	R4-25	244290.000	2003822.100	5.17	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea quarter=25 cents
641	R4	R4-26	244304.400	2003838.000	4.99	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
642	R4	R4-27	244300.800	2003836.800	4.98	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 4 inches.
643	R4	R4-28	244279.470	2003819.002	4.63	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Same as ID R4-15. 12 in. heavy steel spike.
644	R4	R4-29	244305.600	2003832.000	4.42	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
645	R4	R4-30	244306.200	2003831.400	4.38	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
646	R4	R4-31	244280.400	2003821.200	4.37	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
647	R4	R4-32	244309.800	2003830.800	4.27	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
648	R4	R4-33	244261.500	2003797.800	4.02	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
649	R1	R1-1	244052.643	2003623.394	226.14	8	12	Other			12/17/2002	No	Tuesday, December 17, 2002	2 ea extremely large pieces of heavy metal scrap. Non OE.
650	R1	R1-2	244054.200	2003627.400	190.66	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 10X12 in. thin aluminum plate.
651	R1	R1-3	244059.300	2003638.800	100.64	4	12	Other	Other	None	12/17/2002	No	Tuesday, December 17, 2002	Expended partial aluminum flare canister.
652	R1	R1-4	244065.049	2003654.857	51.60	12	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Heavy steel I beam extending deeper than 12 inches. Anomaly not removed
653	R1	R1-5	244065.549	2003656.384	39.18	6	12	Other			12/17/2002	No	Tuesday, December 17, 2002	4 inch diameter thin aluminum disc at 6 inches
654	R1	R1-6	244054.432	2003621.980	36.70	10	10	Other			12/17/2002	No	Tuesday, December 17, 2002	5 pieces of large metal scap.
655	R1	R1-7	244119.625	2003711.855	23.20	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 4 inches; Anomaly contact continues deeper than 12 inches.
656	R1	R1-8	244116.951	2003710.514	15.49	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
657	R1	R1-9	244053.015	2003628.008	14.90	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
658	R1	R1-10	244054.541	2003628.610	10.40	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	1 ea 3X4 in. thin aluminum plate at 3 inches
659	R1	R1-11	244100.017	2003674.318	8.87	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
660	R1	R1-12	244090.200	2003684.700	6.35	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
661	R1	R1-13	244058.096	2003620.167	5.86	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
662	R1	R1-14	244093.200	2003681.400	5.65	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
663	R1	R1-15	244055.314	2003633.731	5.20	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter on surface, no other contact
664	R1	R1-16	244095.600	2003684.400	4.42	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 3 inches
665	R1	R1-17	244109.124	2003689.986	4.29	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
666	R1	R1-18	244057.016	2003637.580	3.94	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter on surface, no other contact.
667	R1	R1-19	244099.500	2003688.000	3.90	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 5 inches
668	R1	R1-20	244097.782	2003690.497	3.80	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	2 pieces of aluminum clutter at 3 inches.
669	R1	R1-21	244088.009	2003682.393	3.44	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter on surface. No other contact.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
670	R2	R2-1	244136.311	2003722.386	265.38	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
671	R2	R2-2	244119.798	2003713.238	22.91	0	12				12/17/2002	No	Tuesday, December 17, 2002	No Find. Anomaly contact continues deeper than 12 inches.
672	R2	R2-3	244143.628	2003727.378	8.14	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Ball of aluminum clutter on surface. No other contact.
673	R2	R2-4	244135.200	2003720.100	4.89	4	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 4 inches
674	R2	R2-5	244156.541	2003734.824	4.81	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
675	R2	R2-6	244149.283	2003731.256	3.74	2	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter at 2 inches
676	R2	R2-7	244168.652	2003744.421	3.60	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter on the surface. No other contact.
677	R2	R2-8	244133.100	2003717.100	3.51	3	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Wood with nails in it at 3 inches
678	R2	R2-9	244138.800	2003725.800	3.40	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Large aluminum spray can on the surface. No other contact.
679	R2	R2-10	244174.500	2003744.100	3.30	5	12	Other			12/17/2002	No	Tuesday, December 17, 2002	Several pieces of metal scrap.
680	R2	R2-11	244132.800	2003720.400	3.30	0	0	Other			12/17/2002	No	Tuesday, December 17, 2002	Aluminum clutter on the surface. No other contact.
681	R2	R2-12	244144.819	2003726.876	3.16	0	4	Other			12/17/2002	No	Tuesday, December 17, 2002	3 ea 12 in. lengths of wood with nails.
682	R2	R2-13	244174.200	2003744.700	3.14	0	12				12/17/2002	No	Tuesday, December 17, 2002	No find.
683	B8	B8-1	247355.006	2004338.172	108.43	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
684	B8	B8-2	247356.152	2004338.067	69.79	12	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Extremely large metal contact encompassing a large area extending deeper than 12 inches
685	B8	B8-3	247344.516	2004343.749	11.40	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
686	B8	B8-4	247370.100	2004338.700	5.94	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
687	B8	B8-5	247353.000	2004334.500	5.68	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
688	B8	B8-6	247380.975	2004334.090	5.20	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
689	B8	B8-7	247360.800	2004334.800	4.98	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 4 inches
690	B8	B8-8	247353.600	2004341.400	4.42	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
691	B8	B8-9	247403.017	2004331.641	3.90	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
692	B11	B11-1	247584.900	2004265.500	13.34	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
693	B11	B11-2	247585.132	2004264.215	9.00	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Several pieces of aluminum clutter at 2 inches
694	B11	B11-3	247575.846	2004274.090	8.20	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
695	B11	B11-4	247576.106	2004273.261	6.71	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
696	B11	B11-5	247582.863	2004277.244	6.70	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
697	B11	B11-6	247588.200	2004262.800	5.96	1	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 1 inch
698	B11	B11-7	247585.310	2004262.539	5.30	5	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea sardine can at 5 inches
699	B11	B11-8	247571.700	2004284.100	4.18	1	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 1 inch
700	B11	B11-9	247570.230	2004283.314	3.84	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches
701	B11	B11-10	247587.900	2004264.000	3.59	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum can top at 2 inches
702	B11	B11-11	247582.026	2004265.829	3.58	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches
703	B11	B11-12	247586.400	2004262.800	3.19	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	2 pieces of aluminum clutter at 3 inches
704	B12	B12-1	247601.336	2004267.421	40.86	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	36 in. length heavy steel rod.
705	B12	B12-2	247627.800	2004243.300	5.21	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	30 foot length of 10 gage metal wire/cable on surface along ID flags 2, 5 and 7. No other contacts.
706	B12	B12-3	247590.000	2004261.000	4.48	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter on surface. No other contact.
707	B12	B12-4	247590.574	2004262.011	4.45	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches
708	B12	B12-5	247631.899	2004243.556	3.88	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	30 foot length of 10 gage metal wire/cable on surface along ID flags 2, 5 and 7. No other contacts.
709	B12	B12-6	247618.243	2004254.859	3.84	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find. Contact continues deeper than 12 inches.
710	B12	B12-7	247629.356	2004244.348	3.02	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	30 foot length of 10 gage metal wire/cable on surface along ID flags 2, 5 and 7. No other contacts.
711	B13	B13-1	247667.100	2004246.900	9067.69	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Very large metal corrugated drain pipe section.
712	B13	B13-2	247669.022	2004255.104	219.80	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	8X8 inch heavy steel plate at 2 inches. Anomaly contact continues deeper than 12 inches.
713	B13	B13-3	247671.300	2004284.700	42.31	6	12	Other			12/18/2002	No	Wednesday, December 18, 2002	3 lb. chunk of heavy steel. Non OE.
714	B13	B13-4	247692.900	2004242.100	28.23	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches; Anomaly contact continues deeper than 12 inches.

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
715	B13	B13-5	247687.500	2004244.500	28.22	5	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 5 inches
716	B13	B13-6	247669.800	2004286.200	28.06	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	3 lb. chunk of heavy steel. Non OE.
717	B13	B13-7	247656.000	2004250.800	23.73	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
718	B13	B13-8	247667.667	2004284.756	20.30	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches. Anomaly contact continues deeper than 12 inches.
719	B13	B13-9	247699.603	2004244.463	17.89	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches. Anomaly contact continues deeper than 12 inches.
720	B13	B13-10	247669.500	2004270.900	11.60	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Large piece of aluminum scrap at 3 inches. Anomaly contact continues deeper than 12 inches.
721	B13	B13-11	247674.437	2004284.238	6.00	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
722	B13	B13-12	247674.300	2004248.400	5.56	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Tuna fish can. Anomaly contact continues deeper than 12 inches.
723	B13	B13-13	247662.192	2004251.375	5.10	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
724	B13	B13-14	247704.817	2004238.499	4.99	1	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 1 inch.
725	B13	B13-15	247663.500	2004252.900	4.89	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find.
726	B13	B13-16	247665.000	2004253.200	4.58	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find.
727	B13	B13-17	247692.699	2004229.183	4.50	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	24 in. diameter rubber tire with a 12 inch heavy steel turn buckle stuck in it.
728	B13	B13-18	247695.781	2004237.799	3.80	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
729	B13	B13-19	247665.000	2004249.900	3.40	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find.
730	B13	B13-20	247678.200	2004246.600	3.38	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
731	B13	B13-21	247663.200	2004250.200	3.25	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find.
732	B14	B14-1	247721.700	2004236.400	81.15	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
733	B14	B14-2	247769.132	2004258.503	43.50	10	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea small metal propane bottle.
734	B14	B14-3	247731.451	2004239.021	18.36	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Crushed aluminum can at 2 inches.
735	B14	B14-4	247714.583	2004224.005	11.20	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 3 inches. Anomaly contact continues deeper than 12 inches.
736	B14	B14-5	247763.195	2004257.243	10.23	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
737	B14	B14-6	247714.200	2004239.100	7.44	5	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Small piece of fish trap wire. Anomaly contact continues deeper than 12 inches.
738	B14	B14-7	247739.160	2004234.540	5.96	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
739	B14	B14-8	247719.748	2004232.647	3.91	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
740	B14	B14-9	247720.800	2004241.200	3.24	0	12				12/18/2002	No	Wednesday, December 18, 2002	No find.
741	B14	B14-10	247716.600	2004237.600	3.04	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Aluminum clutter at 2 inches
742	B15	B15-1	247775.993	2004255.175	204.37	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea 24 inch diameter rubber tire.
743	B15	B15-2	247802.684	2004275.677	75.00	0	12				12/18/2002	No	Wednesday, December 18, 2002	ID Flag within 1 foot of beach pavilion.
744	B15	B15-3	247831.637	2004288.715	48.80	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	ID flag next to beach pavilion.
745	B15	B15-4	247772.100	2004254.700	41.11	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Thick aluminum scrap at 3 inches
746	B15	B15-5	247799.265	2004273.347	37.25	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
747	B15	B15-6	247775.400	2004258.600	3.06	6	12	Other			12/18/2002	No	Wednesday, December 18, 2002	2X4 12 in. length of wood with nails
748	B16	B16-1	247832.675	2004289.551	134.32	0	0	Other			12/18/2002	No	Wednesday, December 18, 2002	ID flag adjacent to beach pavilion.
749	B16	B16-2	247874.400	2004304.800	102.62	0	0				12/18/2002	No	Wednesday, December 18, 2002	ID flag within 1 foot of beach pavilion.
750	B16	B16-3	247873.952	2004299.649	67.53	1	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea 24 in. diameter rubber tire.
751	B16	B16-4	247870.537	2004297.044	7.61	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 ea thick steel can.
752	B16	B16-5	247835.427	2004289.749	6.53	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
753	B16	B16-6	247863.339	2004299.624	5.38	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
754	B17	B17-1	247951.116	2004311.362	4041.13	0	0	Other			12/18/2002	No	Wednesday, December 18, 2002	Anomaly ID flag marked a large US Government property sign with 2 metal post.
755	B17	B17-2	247921.949	2004311.944	146.02	0	0				12/18/2002	No	Wednesday, December 18, 2002	ID flag within 1 foot of beach pavilion
756	B17	B17-3	247908.563	2004300.892	118.47	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Large piece of aluminum sheet metal scrap. Anomaly contact continues deeper than 12 inches.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Grid #	Anomaly ID	Easting	Northing	Peak	Depth to Tip	Depth to Tail	Type	Filler	Fuse	Date Found	Disposal	Date Disposed	Comments
757	B17	B17-4	247954.199	2004317.955	79.49	0	0	Other			12/18/2002	No	Wednesday, December 18, 2002	ID flag within 1 foot of a beach pavilion.
758	B17	B17-5	247896.657	2004298.574	32.67	4	12	Other			12/18/2002	No	Wednesday, December 18, 2002	Large piece of aluminum sheet metal scrap.
759	B17	B17-6	247908.423	2004304.465	7.99	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
760	B17	B17-7	247901.400	2004303.000	3.78	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
761	B17	B17-8	247907.700	2004302.700	3.55	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	2 pieces of aluminum clutter at 3 inches
762	B18	B18-1	247981.527	2004311.730	12.00	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	20 in. length of 1/2 in. steel re-bar on the surface.
763	B18	B18-2	248011.133	2004308.704	7.11	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	8 inch length of 1/2 in steel re-bar at 2 inches
764	B18	B18-3	248026.352	2004303.791	4.52	8	12	Other			12/18/2002	No	Wednesday, December 18, 2002	1 steel wire clothes hanger at 8 inches
765	B18	B18-4	248015.204	2004303.065	3.98	0	12				12/18/2002	No	Wednesday, December 18, 2002	No Find. Anomaly contact continues deeper than 12 inches.
766	B18	B18-5	248027.443	2004304.090	3.84	3	12	Other			12/18/2002	No	Wednesday, December 18, 2002	48 inch length of 1/2 steel re-bar.
767	B18	B18-6	247995.384	2004308.773	3.80	2	12	Other			12/18/2002	No	Wednesday, December 18, 2002	24 inch length of 1/2 in. steel re-bar at 2 inches
768	B18	B18-7	247972.800	2004310.500	3.03	0	12	Other			12/18/2002	No	Wednesday, December 18, 2002	18 in. length of 1/2 in. steel re-bar

DAILY OPERATIONS SUMMARY

DATE: 12 / 02 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

h. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE: Tasked to have USA Environmental and NAEVA personnel set up equipment needed for project. UXO Techs provide UXO avoidance support to NAEVA personnel. UXO Techs commence conducting a surface walk of the beach areas that will have data collected on picking up any metal debris, removing any obstacles and marking any UXO or suspected UXO items on the surface.

b. Demolition Supplies Expended: NONE USED/EXPENDED[illegible]

c. Scrap Generation / Disposition: NONE GENERATED

[illegible]

a. Daily Man-hours:

OPS-1 Form

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** USA Environmental and NAEVA personnel setup all equipment to be used during the duration of the project. UXO Techs completed a surface sweep of Red Beach East and West removing trash and surface obstacles. UXO Techs provided assistance and UXO avoidance support to NAEVA personnel.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 02 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 03 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: **Red and Blue Beach OE/MEC Site Investigation, Vieques, PR**

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. **INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:** Tasked to have USA Environmental personnel assist the UXOSO with the setup of an equipment check area at Red Beach East. SUXOS accompany UXOSO and NAEVA personnel to SWMU 4 to facilitate operating the EM-61 over the prove out plot there. NAEVA commence collecting Geophysical data on Red Beach East. UXO Techs provide UXO avoidance support and equipment setup assistance to NAEVA personnel.

a. UXO Located: NONE LOCATED

[illegible]

b. Demolition Supplies Expended: NONE USED/EXPENDED

[illegible]

c. Scrap Generation / Disposition: NONE GENERATED

[illegible]

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** SUXOS accompanied and assisted the UXOSO and NAEVA with operation of the EM-61 on the prove out plot at SWMU 4. UXOSO and UXO Techs completed the setup of an Equipment Check Area at Red Beach East to be use on a daily basis for the calibration of magnetometer equipment for the duration of the project. NAEVA personnel commenced the collection of Geophysical data on Red Beach East. UXO Techs provided equipment setup assistance and provided UXO avoidance support to NAEVA personnel.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 03 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 05 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA continue and complete collecting Geophysical data on Red Beach East; once complete commence collecting data on Red Beach West. UXO Techs commence and complete an UXO Surface Sweep on Blue Beach removing all surface debris and obstacles, and marking any suspected UXO items. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel.

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

PAGE 4 of 5 PAGES

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NEAVA personnel completed the collection of Geophysical data on Red Beach East and commenced Geophysical data collection on Red Beach West. UXO Techs commenced and completed an UXO surface sweep of all Blue Beach area removing trash and surface debris/obstacles to ready for data collection. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel. As of this day CH2M Hill has still not received permission from the Navy to commence UXO intrusive operations on Monday the 9th of December as per the operations schedule.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 05 / 02

DAILY OPERATIONS SUMMARY

DATE: 12/04/02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA continue collecting Geophysical data on Red Beach East. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel.

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals					
Detector		2 @ 10 hrs			

5. **Operational Remarks:** NEAVA personnel continued the collection of Geophysical data on Red Beach East. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 04 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 06 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:
NAEVA continue collecting Geophysical data on Red Beach West. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel.

2. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NEAVA personnel continued the collection of Geophysical data on Red Beach East. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 04 / 02

g. UXO Located: NONE LOCATED

[illegible]

PAGE 4 of 5 PAGES

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		1 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NEAVA personnel completed the collection of Geophysical data on Red Beach West and returned back to Red Beach East to re-collect Geophysical data on Grid R-11 to cover gaps in previous data collected. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel. As of this day CH2M Hill has still not received permission from the Navy to commence UXO intrusive operations on Monday the 9th of December as per the operations schedule. UXO Tech B. Thompson departed the island of Vieques today to return to the home office in Tampa.

6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 06 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 09 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:
UXOSO conduct a Site Safety and Site Specific Brief with newly arrived UXO Techs who will be a part of the intrusive team. SUXOS conduct a site tour and operations work brief with newly arrived UXO Techs. NAEVA personnel commence re-acquisition of anomaly target picks on the grids at Red Beach east. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel.

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** UXOSO conducted a site safety and a site-specific brief with the newly arrived personnel; C. Lyon (UXO II) and J. McIntosh (UXO III). These personnel along with the SUXOS will conduct UXO intrusive operations on site. The SUXOS conducted a site tour and operations work brief with C. Lyon and J. McIntosh. NAEVA completed anomaly re-acquisition on grids R-6, R-7 and R-8. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel. As of this day CH2M Hill has still not received permission from the Navy to commence UXO intrusive operations on this day, Monday the 9th of December as per the operations schedule.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 09 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 10 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>25</u>	<u>975</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA personnel continue with re-acquisition of anomaly target picks on the grids at Red Beach east. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel. UXO Techs commence intrusive at Red Beach East on Grid R-6 if permission to go intrusive is given by the Navy.

3. UXO SUMMARY

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

Daily Operations Summary Con't.

PAGE 4 of 5 PAGES

4. Utilization

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed anomaly re-acquisition on grids R-9 and R-10. UXO Techs provided assistance and provided UXO avoidance support to NAEVA personnel. Authorization was given by the Navy at 1410 hours today to commence intrusive operations on Red and Blue beaches. UXO Techs commenced intrusive operations at Red Beach East on grid R-6. A 200-foot exclusion zone was maintained during intrusive operations.
6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 10 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 11 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

I. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>125</u>	<u>850</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:
NAEVA personnel continue with and complete re-acquisition of anomaly target picks on the grids at Red Beach east; once complete with Red Beach East commence staking out grids on Blue Beach. UXO Techs provide UXO avoidance support and assistance to NAEVA personnel. UXO Techs continue with intrusive operations at Red Beach East on Grids prosecuting anomaly ID target picks.

3. UXO SUMMARY

a. UXO Located: NONE LOCATED

[illegible]

b. Demolition Supplies Expended: NONE USED/EXPENDED

[illegible]

c. Scrap Generation / Disposition:

[illegible]

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed anomaly re-acquisition on grids at Red Beach East. NAEVA completed staking out grids on Blue Beach. UXO Techs provided UXO avoidance support to all personnel on all sites. UXO Techs completed intrusive operations on grids R-6, R-7, R-8 and 10% of R-9 at Red Beach East. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.

6. **Signature / Date:**DANIEL MILLER/SUXOS

SUXO / Project Manager

Date: 12 / 11 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 12 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>182</u>	<u>668</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA personnel commence Geophysical data collection on grids at Blue Beach. UXO Techs provide UXO avoidance support to all personnel on site. UXO Techs continue with intrusive operations on grids at Red Beach East prosecuting anomaly ID target picks.

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

PAGE 4 of 5 PAGES

a. Daily Man-hours:

OPS-1 Form

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA personnel commenced collecting Geophysical data on Blue Beach. UXO Techs provided UXO avoidance support to all personnel on site. UXO Techs completed intrusive operations on grids R-11 and 90% of R-10 at Red Beach East. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.
6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 12 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 13 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: **Red and Blue Beach OE/MEC Site Investigation, Vieques, PR**

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>47</u>	<u>621</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA personnel conduct re-acquisition of anomaly target picks on grids B-1 and B-2 and then continue with Geophysical data collection on grids at Blue Beach. UXO Techs provide UXO avoidance support to all personnel on site. UXO Techs continue with intrusive operations on grids at Red Beach East until Camp Garcia personnel commence setting up for their command party function; once Camp Garcia personnel show up at Red Beach then move to Blue Beach and commence prosecuting anomaly ID target picks on grids B-1 and B-2.

[illegible][illegible]

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed re-acquisition of anomaly target picks on grids B-1 and B-2 and continued collecting Geophysical data on Blue Beach. UXO Techs provided UXO avoidance support to all personnel on site. UXO Techs completed intrusive operations on grid R-10 at Red Beach East; and grids B-1 and B-2 at Blue Beach. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.

6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 13 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 16 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>125</u>	<u>496</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA personnel conduct re-acquisition of anomaly target picks on grids B-3, B-4, B-6 and B-7; then continue with Geophysical data collection on grids at Blue Beach. UXO Techs provide UXO avoidance support to all personnel on site. UXO Techs continue with intrusive operations on grid R-9 at Red Beach East; once completed then move to Blue Beach and commence prosecuting anomaly ID target picks on grids B-3, B-4, B-6 and B-7.

PAGE 4 of 5 PAGES

a. Daily Man-hours:

OPS-1 Form

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed re-acquisition of anomaly target picks on grids B-3, B-4, B-6 and B-7 and then continued collecting Geophysical data on Blue Beach. UXO Techs provided UXO avoidance support to all personnel on site. UXO Techs completed intrusive operations on grid R-9 at Red Beach East; and grids B-3 and B-4 at Blue Beach. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.
6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 16 / 02

DAILY OPERATIONS SUMMARY

DATE: 12/17/02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>139</u>	<u>357</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA personnel conduct re-acquisition of anomaly target picks on grids R-1 thru R-4 at Red Beach West; then conduct re-acquisition of anomaly target picks on remaining grids at Blue Beach. UXO Techs provide UXO avoidance support to all personnel on site. UXO Techs commence and complete prosecuting anomaly target ID picks on grids B-6 and B-7 at Blue Beach; once complete move to Red Beach West and commence prosecuting anomaly target ID picks on grids R-1, R-2, R-3 and R-4.

a. UXO Located: NONE LOCATED

[illegible]

a. Daily Man-hours:

OPS-1 Form

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed re-acquisition of anomaly target picks on grids R-1, R-2, R-3 and R-4 at Red Beach West; and then commenced re-acquisition of anomaly target picks on remaining grids at Blue Beach. UXO Techs provided UXO avoidance support to all personnel on site. UXO Techs completed intrusive operations on grids B-6 and B-7 at Blue Beach; and on grids R-1, R-2, R-3 and R-4 at Red Beach West. Prior to securing operations for the day, UXO Techs completed intrusive operations on 50% of grid B-5 at Blue Beach. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 17 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 18 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>124</u>	<u>233</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE:

NAEVA Geo Team complete re-acquisition of anomaly target picks on grids at Blue Beach. UXO Techs provide UXO avoidance support to all personnel on site. UXO Techs continue intrusive operations at Blue Beach prosecuting anomaly target ID picks on grids B-5, B-8, B-9, B-10, B-11, B-12, B-13, B-14 B-15, B-16, B-17 and B-18.

3. UXO SUMMARY

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

a. Daily Man-hours:

12/18/02

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** NAEVA completed re-acquisition of anomaly target picks on the remaining grids at Blue Beach. UXO Techs provided UXO avoidance support to all personnel on site. UXO Techs completed intrusive operations on grids B-5, B-8, B-9, B-10, B-11, B-12, B-13, B-14 B-15, B-16, B-17 and B-18 at Blue Beach. As of the end of this workday all geophysical data was collected, all anomaly ID target picks were re-acquired and all anomaly ID's were prosecuted intrusively at Red and Blue Beaches. A total of 767 anomaly target ID's were prosecuted. UXO Techs re-located and sorted all metal scrap and trash to the ground tarp collection point that was uncovered during the day's intrusive operations.

6. Signature / Date:

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 18 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 19 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE: UXO Techs assist in pulling all grid stakes on Red and Blue Beaches and package for storage. UXOSO and UXO Techs segregate and inspect all scrap metal at ground tarp collection points, then containerize in drums and place drums on pallets for transportation off site. UXO Techs package and load up all company gear used during the operation, then transport and re-stow at SWMU 4 site area in bunker 239. UXO Techs provide UXO avoidance support to all personnel on site.

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Weedeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** Completed removing and packaging for storage all grid stakes used at Red and Blue Beaches. Segregated, inspected and containerized all metal scrap recovered during intrusive operations at Red and Blue Beaches. Packaged and loaded all equipment for storage in bunker 239, then transported to SWMU 4 Site. Transported all metal scrap containers (1 ea. 55 gallon drum and 2 ea. 35 gallon drums) to Camp Garcia PWC storage compound to await further disposition by Naval Station Roosevelt Roads Environmental Department. UXO Techs provided UXO avoidance support to all personnel on site.
6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 19 / 02

DAILY OPERATIONS SUMMARY

DATE: 12 / 20 / 02

PAGE 1 OF 5 PAGES

SITE / LOCATION: Red and Blue Beach OE/MEC Site Investigation, Vieques, PR

1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	<u>0</u>	<u>0</u>
(2) Preparation	<u>0</u>	<u>0</u>
(3) Mag & Flag	<u> </u>	<u> </u>
(4) Geophysical	<u>0</u>	<u>0</u>
(5) Intrusive	<u>0</u>	<u>0</u>
(6) Brush Cutting	<u>0</u>	<u>0</u>
(7) Hand Grubbed	<u>0</u>	<u>0</u>

b. Discrepancies: _____

c. Inspection Results:	Pass	Fail
(1) Quality Control	<u> </u>	<u> </u>
(2) Quality Assurance	<u> </u>	<u> </u>
(3) Safety	<u> </u>	<u> </u>

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE: UXO Techs package for shipment and ship all equipment being returned to USA Environmental home office in Tampa. UXO Techs package and stow any equipment being stored at CH2M Hill's Site Managers rental apartment until the return for the next project. SUXOS pay travel pay to C. Lyon and J. McIntosh for travel back to their homes.

a. UXO Located: NONE LOCATED

[illegible]

[illegible][illegible]

PAGE 4 of 5 PAGES

a. Daily Man-hours:

[illegible]

b. Daily Equipment:

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:
Schonstedt		3 @ 10 hrs			
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
		6 @ 10 hrs			
Backhoe					
Front-end Loader					
Rental Car		2 @ 10 hrs			
GPS					
Wecdeater					
Chainsaw					
Cellular Phone		1 @ 10 hrs			
Laptop Computer		1 @ 10 hrs			
PDA Handheld		2 @ 10 hrs			
All Metals Detector		2 @ 10 hrs			

5. **Operational Remarks:** Cleaned then packaged equipment being shipped back to USAF office in Tampa. Shipped equipment via FedEx to Tampa, FL. Packaged then transported all office and personnel equipment remaining in Vieques until the next operation to CH2M Hill's Site Managers rental apartment. SUXOS paid de-mob travel allowances to C. Lyon and J. McIntosh.
6. **Signature / Date:**

DANIEL MILLER/SUXOS
SUXO / Project Manager

Date: 12 / 20 / 02















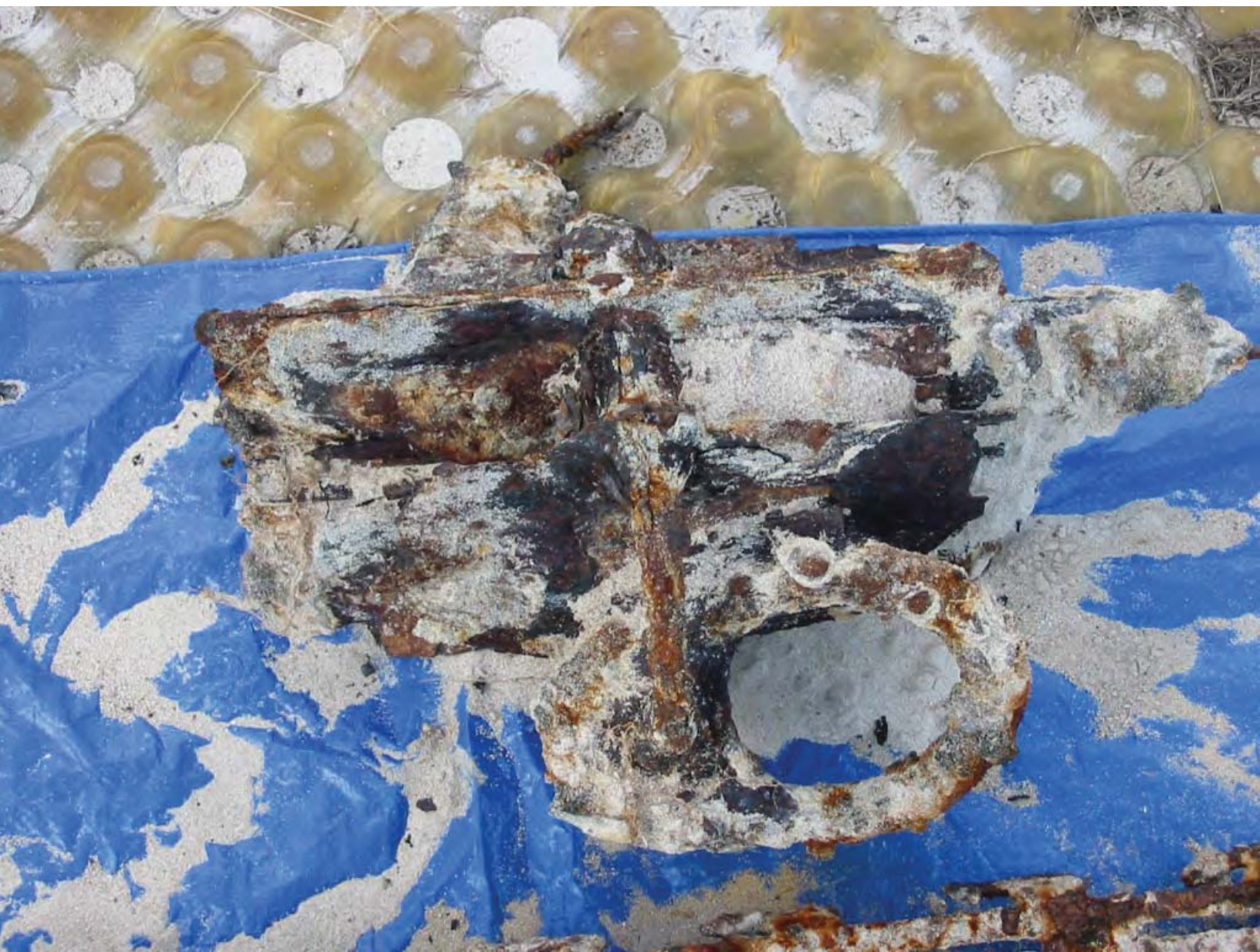














APPENDIX C

Results of Geophysical Investigation (NAEVA Geophysics, Inc.

GPR
MAGNETICS
ELECTROMAGNETICS
SEISMICS
RESISTIVITY
UTILITY LOCATION
UXO DETECTION
BOREHOLE CAMERA
STAFF SUPPORT

Results of Geophysical Investigation

**Red Beach and Blue Beach
Eastern Maneuver Area
Vieques Island, Puerto Rico**

Dates of Investigation:

December 2 to December 19, 2002

Draft Submittal

January 30, 2002

MARYLAND
4707 Benson Ave.
Suite 104
Baltimore
Maryland 21227
(410) 536-7600
(410) 536-7602 Fax

NEW YORK
50 N. Harrison Ave.
Suite 11
Congers
New York 10920
(845) 268-1800
(845) 268-1802 Fax

VIRGINIA
P.O. Box 7325
Charlottesville
Virginia 22906
(434) 978-3187
(434) 973-9791 Fax

PREPARED FOR:



CH2M HILL
Milwaukee, Wisconsin
Contract Number: N62470-95-D-6007

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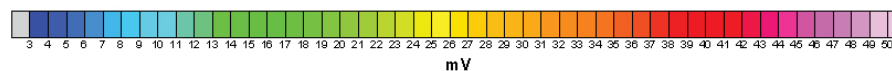
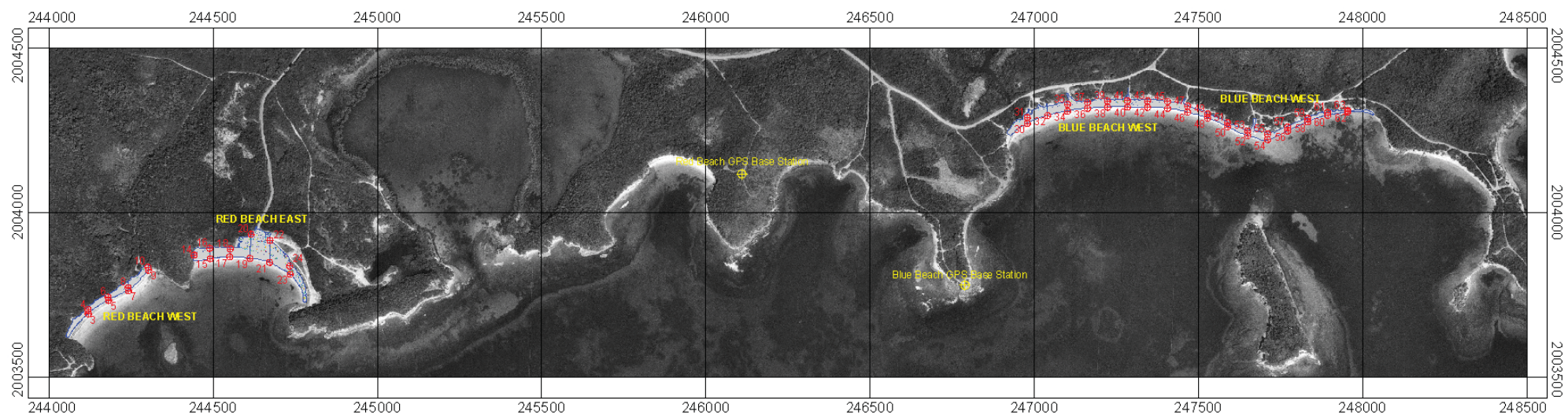
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1 EXECUTIVE SUMMARY

NAEVA Geophysics Inc. was contracted to conduct geophysical investigations at two sites identified as Red Beach and Blue Beach, located in the Eastern Maneuver Area of Vieques Island, Puerto Rico. The purpose of these investigations was to detect and map subsurface metal in an attempt to evaluate the presence of unexploded ordnance (UXO) at the two sites (Figure 1). To further characterize the subsurface contamination represented by geophysical anomalies, approximately 74% of the selected targets were reacquired for intrusive investigation. Red Beach was divided into two distinct areas, Red Beach West and Red Beach East, totaling approximately 6 acres while Blue Beach consisted of approximately 5.7 acres. Both Blue and Red Beaches were partitioned into a series of grid cells approximately 200 feet long (widths were determined by the widths of the beaches). Grids were named consecutively from west to east at each beach (R1 through R11 at Red Beach and B1 through B18 at Blue Beach).

A two phase geophysical prove-out was conducted prior to the start of the production geophysical mapping. The first phase of the prove-out occurred at the previously established prove-out area at SWMU 4. CH2M HILL personnel then constructed a test line at Red Beach East to evaluate site-specific conditions and detection criteria. All prove-out data were immediately processed and reviewed by the site geophysicist, the NAEVA technical support team, and CH2M HILL management, prior to the commencement of the geophysical investigation. Prove-out results demonstrated that NAEVA's personnel, equipment, and methods were all sufficient to meet the project performance requirements.

USA Environmental, Inc. conducted intrusive work simultaneously with geophysical data collection and target reacquisition. NAEVA provided the intrusive team with digital dig sheets on which annotated field notes were recorded for each subsequent dig. A total of 763 targets were selected for intrusive investigation. A significant percentage of these anomalies were found to result from the presence of subsurface civilian trash, likely originating in the period that the beaches were open to the public.



Legend

- Area of Investigation
- 14 ⊕ Stake Location
- ⊕ GPS Base Station

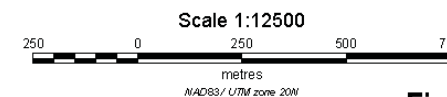
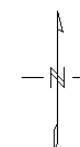
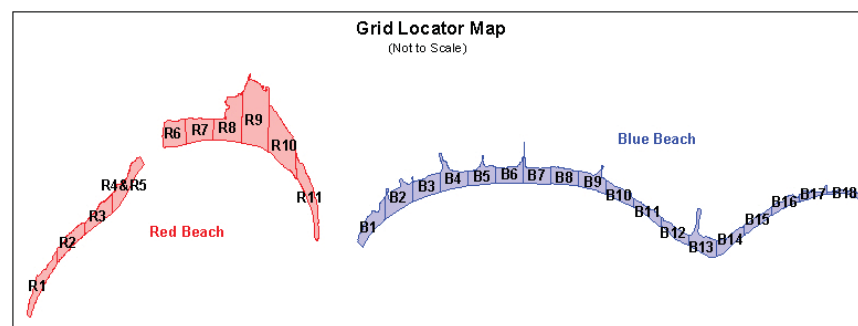


Figure 1

CH2M HILL

EM-61 Bottom Coil
Mosaic
Red Beach and Blue Beach
Vieques, Puerto Rico

December 2002

2 INTRODUCTION

In accordance with CTO-272 for the Navy CLEAN II Prime Contract Number N62470-95-D-6007, NAEVA Geophysics, Inc. was contracted by CH2M HILL to conduct digital geophysical mapping and anomaly reacquisition at Red Beach and Blue Beach in the Eastern Maneuver Area (EMA), Vieques Island, Puerto Rico. The primary objective of the geophysical mapping was an attempt to evaluate the presence of UXO/OE at the two beaches. The sites are located on the eastern third of the island of Vieques, Puerto Rico, along the southern shore. Site preparation work included UXO surface clearance, trash removal, and vegetation removal where necessary. The geophysical investigation was conducted from December 2 to December 19, 2002. USA Environmental, Inc., under a separate contract, conducted intrusive operations in conjunction with the geophysical investigation.

3 BACKGROUND

The EMA occupies the eastern end of the island of Vieques, encompassing approximately 11,000 acres. Military activities at the site were conducted under the supervision of Atlantic Fleet and other allied ships and air wings. Former uses include the providing of facilities and scheduling for naval gunfire support and air-to-ground ordnance delivery training. Red Beach and Blue Beach lie along the southern coast of the EMA and are suspected to have been used as practice amphibious landing sites. Portions of the EMA, including the two beaches, are scheduled to be transferred to the Department of the Interior and opened to public use in 2003. Most of area within the EMA remains undeveloped.

4 GEOLOGY/TOPOGRAPHY/VEGETATION

The mapped bedrock geology at the sites is primarily comprised of limestones of Tertiary and Miocene ages. Beach and dune deposits made up of calcite, quartz and volcanic rocks, and fragment sand dominate surface morphology at the site. Bedrock outcrops occur at the

ends of the beaches and mark the limits of investigation in those areas. Vegetative ground cover consists mainly of grass and low brush with occasional taller brush and small trees.

5 PROVE-OUT

The purpose of test plots for prove-out exercises is to demonstrate the effectiveness of all instrumentation, methods, and personnel prior to the initiation of fieldwork. The prove-out for this investigation was conducted in two phases prior to the start of geophysical mapping. A complete prove-out was conducted at SWMU 4, an area established during a previous project on Vieques. The smallest buried munition at SWMU 4 was the 20mm projectile. Various larger tailfin assemblies, fuses, and projectiles (all of which were recovered during surface clearance of the site) were also included in the seeded items. Data collection at the SWMU 4 prove-out was designed to demonstrate the functionality of NAEVA's geophysical equipment based on the duplication of earlier results. The second prove-out phase consisted of a single test line established at Red Beach East and seeded with items expected to be found at the two beaches. Munitions along the test line ranged in size from a 5.56 mm rifle cartridge to a 20mm projectile and included smoke canisters and various combinations of small arms munitions buried in clusters. Test line measurements were designed to evaluate two different sensor configurations, wheel mode and sled mode, in order to determine the most appropriate site-specific method of data collection. Serial number identification was recorded for all instrumentation (i.e. data logger, coils, backpack, GPS equipment), and the geophysical mapping was conducted using the same personnel, equipment, and methodologies employed for all geophysical survey work. During both prove-out exercises, preliminary maps were generated, and the locations of anomalies in the data were compared to the actual seeded positions. (Appendix A)

5.1 Prove-Out Phase I (SWMU 4)

During geophysical investigations at SWMU 4 in the spring of 2002, a 100-foot by 50-foot area was established and seeded with 48 target items by CH2M HILL personnel. Survey design (i.e. locations, orientations, and depth of targets) was predetermined and recorded by

the CH2M HILL representative who oversaw the prove-out work. Prior to the start of geophysical mapping at Red Beach and Blue Beach, the prove-out area was surveyed with the EM-61 in a standard wheel-mode configuration, in order to establish the functionality of the instrument as compared to earlier results. This phase of data collection in the prove-out was ended three feet (one line) short of the designed width resulting in a lack of data over two emplaced items. Of the items over which data was collected, all 46 were detected and targeted accurately, as well as some other “unknown” items. The response exhibited over the items varied based upon their orientation and depth below the ground surface. (Appendix A)

5.2 Prove-Out Phase II (Test Line)

Following the successful completion of the SWMU 4 prove-out, a test line was constructed at Red Beach East to determine the most appropriate method of data collection. Established by CH2M HILL personnel, the test line measured approximately 70 feet and contained a total of 15 burials, some of which included multiple small arms cartridges. Data collection along the test line was accomplished with the EM-61 operated in wheel-mode and in sled mode. Sled mode data collection places the EM-61 coils 3-5cm off the ground surface allowing greater depths of detection. In order to expedite the prove-out process, test line data in both wheel and sled mode were collected without GPS equipment, as would be used in the actual survey. Both methods resulted in the accurate detection of eight of the 15 burials. Detected items included all six 20mm projectiles and the two CS/Smoke grenades. In sled mode one additional item, a .30 caliber rifle casing, was detectable at just above the proposed threshold level. All other emplaced items smaller than a 20mm projectile were not detected using either method. (Appendix A)

5.3 Prove-Out Conclusions

The procedures and guidelines outlined for the investigation of potential UXO at Red Beach and Blue Beach were successfully developed and implemented during the two phases of the initial prove-out. Results of the test line prove-out were discussed with CH2M HILL personnel in order to select the most appropriate method of data collection for the investigation. The inability to detect any of the small arms cartridges was believed to be a

result of the relatively small mass of the items of interest in comparison to the coil diameter of the EM-61. Based on the comparable detection capabilities, wheel-mode operation was selected as the most expedient method of data collection. The EM-61 was then outfitted with a GPS antenna and the test line was collected a third time to establish the appropriate threshold response value for the geophysical mapping (Appendix A). Relatively low background levels of response (“noise”) were observed and, along with the small size of the munitions of interest, resulted in the selection of a 3 mV targeting threshold. It was noted at this time that the use of GPS equipment in close proximity to the electromagnetic sensor at a 3 mV threshold could result in a slight increase in no finds by the intrusive team.

6 METHODS

Due to the small size of suspected ordnance (20mm and smaller) and the results of previous investigations on Vieques, the Geonics EM-61 (1m x 0.5m coil) electromagnetic metal detector was selected as the geophysical method for the investigations at Red Beach and Blue Beach.

6.1 Geonics EM-61 (Electromagnetics)

The EM-61 is a time-domain electromagnetic instrument designed to detect, with high spatial resolution, shallow ferrous and non-ferrous metallic objects. The applicability of the instrument for OE detection has been widely demonstrated at sites across the United States. The instrument consists of two air-cored coils (1m x 0.5m), batteries, processing electronics, and a digital data recorder. The thicker of the two coils functions as the EM source and receiver and is positioned 40 cm below a second receiver coil. Secondary currents induced in both coils are measured in millivolts (mV). For this investigation, the EM-61 was operated in wheel-mode in which non-metallic wheels are attached to the bottom coil and used to propagate the instrument across the site at a height of 40 cm.

Due to the open surface conditions (no tree cover) and the narrow, curving shape of the beaches, the EM-61 was operated in conjunction with Global Positioning System (GPS)

equipment. EM-61 readings were recorded simultaneously with the GPS positional data and stored in a Juniper Systems Allegro field computer. The EM-61 was set to record readings at the fastest rate available (“XFAST mode” ~ 10 readings/sec), which equated to more than one reading per foot over the relatively open and flat terrain.

6.2 Ashtech Z-FX Surveyor RTK (Real Time Kinematic) GPS system

An Ashtech Z-FX Surveyor RTK GPS system was used for the real-time acquisition of positional data during geophysical data collection. The same system was used to establish the stake locations marking grid cell boundaries and to reacquire the locations of all selected targets. A GPS base station, utilizing an Ashtech Z-FX receiver, was used in conjunction with a rover antenna either mounted over the center of the EM-61 coils for data collection or placed atop an approximately two-meter long pole for surveying stake locations and for reacquisition. Real time corrections were broadcast to the roving GPS unit via a radio link using Pacific Crest radio modems. This system provides positional updates at a rate of 1 Hz, with an accuracy of 3-cm horizontal. During data collection, the positional data was stored along with the EM-61 readings in a single file on a Juniper Systems Allegro field computer for later downloading into a laptop computer. Reacquisition and the placing of survey stakes were accomplished by uploading the necessary points into the Allegro and then maneuvering the GPS roving antenna (detached from the EM-61) to the specified coordinates.

As no known survey locations were conveniently available, the system was first used to establish one GPS base point each for Red Beach and Blue Beach. For the Red Beach base point a metal rod was driven into the ground to act as a survey marker. The GPS base station was then positioned over the rod and set to take an average of readings collected over 30 minutes. As per manufacturer recommendations, this process was repeated three times over the course of a day. The three resultant locations were then averaged resulting in a highly accurate base location. Once this location had been established, the GPS rover was used to establish the Blue Beach base location over an unlabeled survey monument. Coordinates for both GPS base locations can be found in Appendix F and should be employed during any subsequent use of data collected by NAEVA during this project.

7 FIELD DATA ACQUISITION

Acquiring GPS positions simultaneous to the geophysical data required the participation of two people at all times during data collection. The geophysical team moved in single file over each survey area with the EM-61 trailing behind. The lead person wore the GPS rover backpack containing the Pacific Crest Radio receiver, a battery, and other associated electronics. This positioning was maintained in order to achieve maximum separation between the GPS backpack and the EM-61 coils, avoiding the influence of radio interference on the geophysical data. The second person towed the EM-61 while wearing its backpack and the data logger. A cable connecting the GPS backpack and the logger allowed both data sets to be collected simultaneously into the same file. (See photos, Appendix E)

Geophysical data at each site was collected between the high water mark on the ocean side of the beach and the leading edge of thick brush cover on the interior side. Individual survey cells approximately 200 feet long in the east-west direction were established in the field with wooden lathe placed at each of the four corners. The locations were based on idealized cell corners and unique quadrant identifications developed by NAEVA prior to the fieldwork. Each survey cell was named by using a nomenclature of “R” for Red Beach, “B” for Blue Beach, and increasing numbers to the east (Figure 1). The idealized (latitude/longitude) coordinates were uploaded into an RTK global positioning system (GPS). Where practical, the stakes were placed directly at the idealized location using the GPS to navigate to each point. Since the idealized coordinates were based on the inspection of aerial photos, it was occasionally necessary to modify stake locations in the field in order to facilitate full coverage of the areas of investigation. All non-idealized corner stakes were revisited with the GPS, and the actual positions of the stakes were then recorded and used in place of the idealized locations on all subsequent maps (Appendix F).

The geophysical data were collected and organized using the 200-foot long grid cells. For production purposes, some of the more narrow cells were collected simultaneously and then split apart during post-processing. The western, middle, and eastern ends of each cell were marked with colored ropes stretched between the wooden stakes. The use of GPS during data collection eliminated the need to establish any local coordinate systems. All data was

collected and reacquired in WGS 84 latitude/longitude coordinates and then converted to UTM coordinates for presentation purposes.

Geophysical data was collected along lines parallel to the shoreline starting on the ocean side and working inward. In areas of soft sand, the field team was able to navigate by observing the wheel tracks from previous passes and moving inland no more than three feet. When the sand became more compacted or when grass or other ground cover was present, traffic cones were moved along the ropes at three-foot intervals ensuring straight-line profiling and complete data coverage. At the conclusion of data collection within each survey cell, a separate file was created within which the field team collected a single data pass around the border of the area of investigation. This file was utilized in post-processing to “clip” any of the data lying outside the survey cell boundaries (i.e. turn-around locations).

8 QUALITY CONTROL DATA

To establish confidence in the data reliability, tests were conducted in a systematic manner throughout the duration of the fieldwork. Various types of quality control data were generated prior to, during, and after all data collection sessions. Weekly system checks were also conducted to confirm that the continued integrity of the entire system was adequate. Samples of various quality control data are included in Appendices B and C of this report. All quality control data are submitted with the electronic version of this report.

DAILY: A location near that day’s fieldwork identified as having no subsurface metal was designated as a calibration point. Readings were collected in a stationary position over the calibration point to ensure a stable and repeatable response was exhibited. During this time, a hand-held radio was placed in the center of the coils, and the instrument’s response was observed. The radio was then removed, and static readings were continued (Appendix B). This test was performed at the beginning and end of each day to establish that the instrument was functioning properly, as indicated by a stable and repeatable response.

DURING DATA COLLECTION: Upon completion of the original collection of a data set, approximately 5% of the line footage for each surveyed block was recollected as a check of instrument repeatability and positioning. The repeat lines were saved to separate files and used to create profiles that provide direct comparison with the original data. Each profile was evaluated, and was determined to show good repeatability in both instrument response and data positioning (Appendix B).

AFTER DATA COLLECTION: While the instrument was still on and functioning, and after original and repeat data were collected for the surveyed area, a hand-held radio was placed within the previously acquired grid. Two approximately 50-foot lines were collected bi-directionally across the item along the same survey line. The data was then reviewed for consistent response, positioning, and to determine an appropriate lag correction (Appendix B).

END OF PROJECT: The SWMU 4 prove-out area was resurveyed at the conclusion of data acquisition procedures to demonstrate the continued consistent response and positioning of anomalies generated by known items (Appendix C). This second phase of prove-out data collection was conducted with all GPS equipment in place just as it was for the production mapping. The GPS equipment was turned on but the data was not logged due to the dense tree canopy at the prove-out site. Data processing was conducted in an identical manner to that of the earlier prove-out in an attempt to evaluate any additional noise introduced into the data by the GPS equipment.

9 DATA PROCESSING

The geophysical data were temporarily stored in the instrument logger and then downloaded into a laptop computer for on-site review and editing. Using Geosoft's Oasis Montaj software, a track plot of the instrument's GPS positions was created to ensure that adequate data coverage had been achieved. Preliminary contour maps were then created for field review of each survey cell. Once in field processing and review was completed, the data

were electronically transferred to NAEVA's Virginia office for analysis/target selection and final map production.

Geosoft's Oasis Montaj UXO software package was employed to post-process and contour the raw data, and to identify and characterize potential UXO targets. The program identifies peak amplitude responses of the frequency associated with, but not limited to, UXO items. Anomalies may generate multiple target designations depending on individual signature characteristics. The target list provides X and Y coordinate locations (in UTM's) for each item and the recorded peak amplitude above the background response.

Geophysical data processing includes the following:

- Instrument drift correction (leveling);
- Lag correction;
- Digital filtering and enhancement (if necessary);
- Gridding of data;
- Selection of all anomalies;
- Selection of targets for intrusive characterization;
- Preparation of geophysical and target maps.

For the majority of grids, all selected anomalies were reacquired for intrusive investigation. In those instances when CH2M HILL personnel elected to investigate a sampling of the targets within a survey cell, NAEVA's field team selected anomalies with even spatial distribution and variable amplitude responses. Those targets not selected were eliminated from the electronic data supplied to the dig team.

10 TARGET REACQUISITION

Reacquisition was accomplished by using the roving GPS antenna mounted atop an approximately two-meter tall survey staff. Completed dig lists were first uploaded into the Allegro field computer. The GPS antenna was then maneuvered to the specified state plane coordinates for each selected target. When the GPS unit displayed a value within 0.5 feet of the target location, a labeled pin flag was placed in the ground. Next, the EM-61 was used to locate the peak or center of the anomalous feature and further refine the position of each

target flag. The target lists also included the original peak responses (mV) that were used to ensure the reacquired EM-61 response was sufficient.

11 INTRUSIVE CLEARANCE

Data packages (Appendix D), which included contour/target maps and digital target lists for each surveyed cell, were made available to the intrusive team to aid with anomaly clearance. Using hand-held detectors (Schonstedt gradiometer and Min-Ex metal detector), the UXO contractor (USA Environmental, Inc.) conducted excavations of the reacquired targets simultaneously with NAEVA's data collection and reacquisition work.

12 RESULTS

The initial survey design for this project called for the geophysical investigation of approximately 20 acres spread over four geographically distinct beaches; Red Beach West, Red Beach East, Blue Beach West, and Blue Beach East. Following a field examination of Blue Beach East, CH2M HILL personnel directed NAEVA to eliminate that beach from the investigation. Contoured geophysical data from the remaining three beaches revealed varying concentrations of subsurface metal throughout the areas of investigation. Concentrations increased with distance from the shoreline and were generally greater in those areas believed to have received the most use during the period that the beaches were open to the public. Intrusive investigation of selected discrete anomalous features revealed limited OE and OE related scrap intermixed with significant amounts of metallic civilian trash.

Red Beach East provides the clearest illustration of what are believed to be the main contributors to any remaining subsurface contamination. Of the three investigated beaches, Red Beach East possesses the most open ground inland from the actual beach areas and is believed to have received the heaviest civilian traffic while open to the public. Western survey cells at this beach (R06 and R07) are more remote from the parking area, have no picnic facilities, and contain the greatest percentage of open sand beach subject to

disturbance by wave action. The relatively inconvenient access and the removal of subsurface items by wave and tidal action are believed to be primarily responsible for the low concentrations of geophysical anomalies within these two cells. The eastern survey cells, containing parking areas and pavilions with picnic tables, have a much higher concentration of geophysical anomalies. Intrusive investigations revealed that many of the anomalies result from the presence of subsurface civilian trash.

Geophysical mapping at Blue Beach West included the investigation of several access roads connecting the beach itself to the main road that parallels it. CH2M HILL personnel selected the individual access roads to be investigated and utilized colored flagging to indicate the extents of investigation. Geophysically mapped access roads can be found in grids B02, B04, B05, B06, B07, B09, and B13, respectively. As at the Red Beaches, anomaly distributions at Blue Beach seem to be controlled by the amount of use at a given section and that area's distance from the wave zone. Sampled access roads also follow this trend as roads with the highest anomaly concentrations lead to areas of the beach with the highest anomaly concentrations.

The geophysical investigation was successful in identifying discrete anomalies within all three of the investigated beaches. Target lists were generated for each surveyed cell. All anomalies that occurred at or above the targeting threshold of 3 mV were identified using a unique ID number. Intrusive investigations at the site revealed a no find rate of approximately 11%, slightly higher than normal. This rate is believed to be due primarily to the use of GPS equipment and a relatively low targeting threshold. As demonstrated in the second data collection effort at the SWMU 4 prove-out, the addition of GPS equipment to the sensor system results in slightly greater electromagnetic noise. NAEVA's analysis of the no find data reveals that an increase of the targeting threshold to 4 mV would have resulted in the elimination of the majority of the no finds. The lower threshold was maintained throughout the project due to the small size of many of the ordnance items of concern.

Selected targets within each survey cell were prioritized by designating the highest amplitude response as the number one target. A target list was then created including anomaly ID, x

and y target locations in UTM coordinates, and peak amplitude response. When appropriate, a second list was generated which identified only those targets selected for intrusive investigation within that cell. Selected targets were designed to provide a sampling of the anomaly distribution spatially, as well as variable amplitude response.

Plates

Plate 1: Red Beach West EM-61 Bottom Coil Mosaic

Plate 2: Red Beach East EM-61 Bottom Coil Mosaic

Plate 3: Blue Beach West EM-61 Bottom Coil Mosaic

Appendices

Appendix A: SWMU 4 Prove-Out Contour Maps and Target Lists; Test Line Method Comparison

Appendix B: Representative Static Test, Repeat Line, and Quality Control Line Profiles

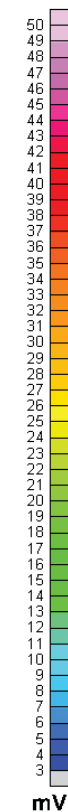
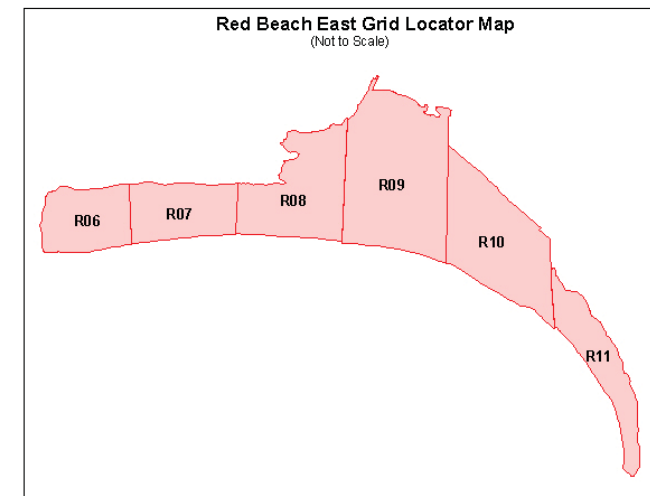
Appendix C: Quality Control Prove-Out Repeat Contour Map

Appendix D: Representative EM-61 Contour Maps and Target Lists

Appendix E: Site Photographs

Appendix F: Surveyed GPS Stake Locations

Appendix G: Field Notes and Daily Logs



Legend

- Area of Investigation
- Stake Location

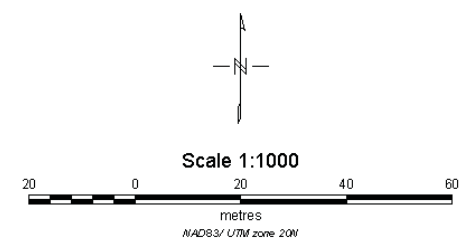
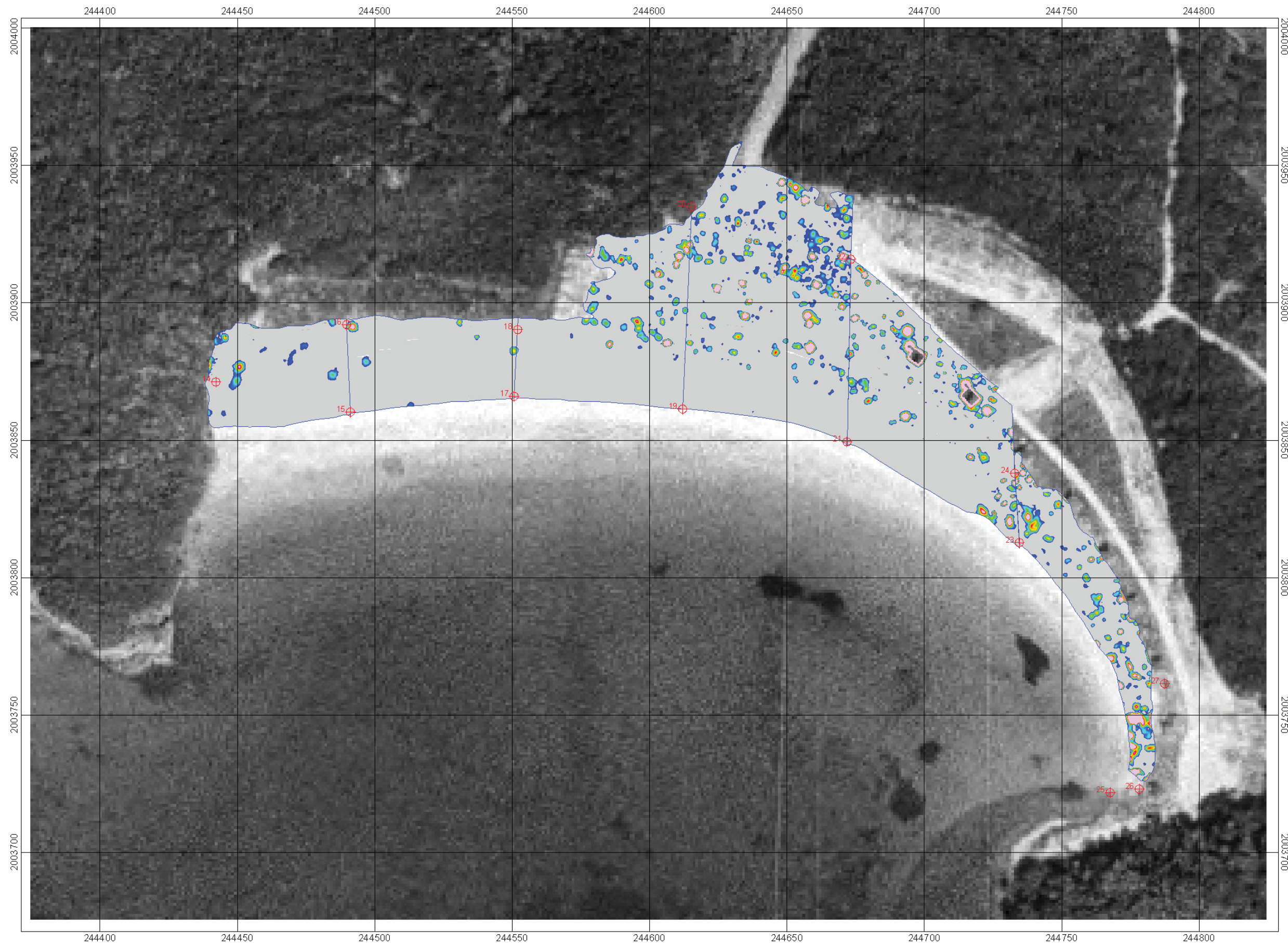


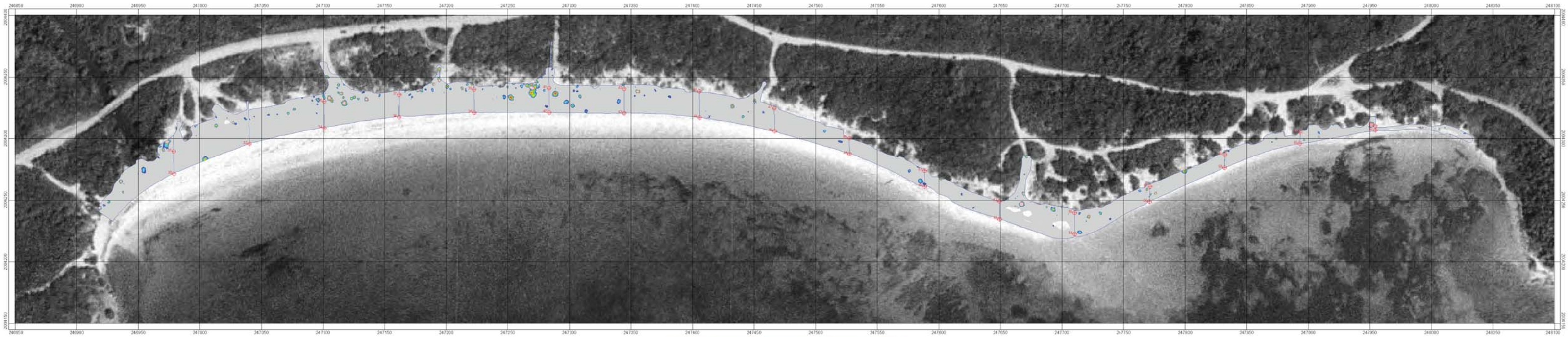
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CH2M HILL

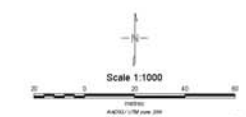
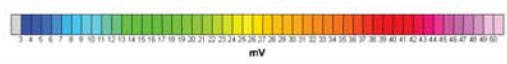
EM-61 Bottom Coil
Mosaic
Red Beach East
Vieques, Puerto Rico

December 2002



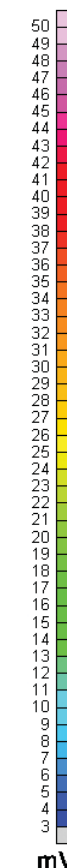
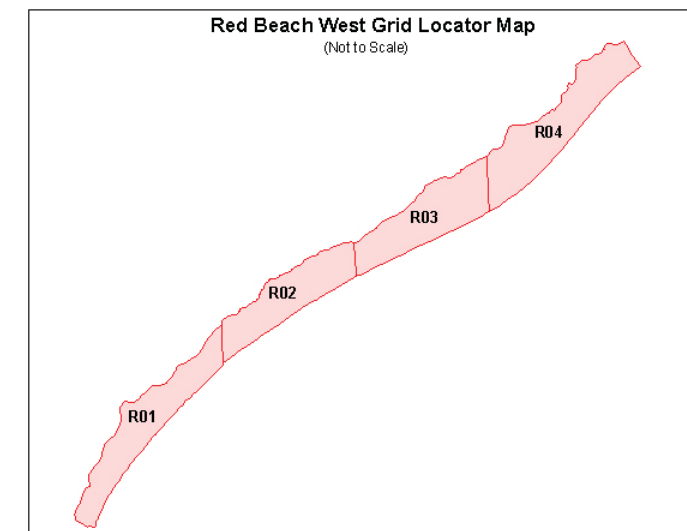
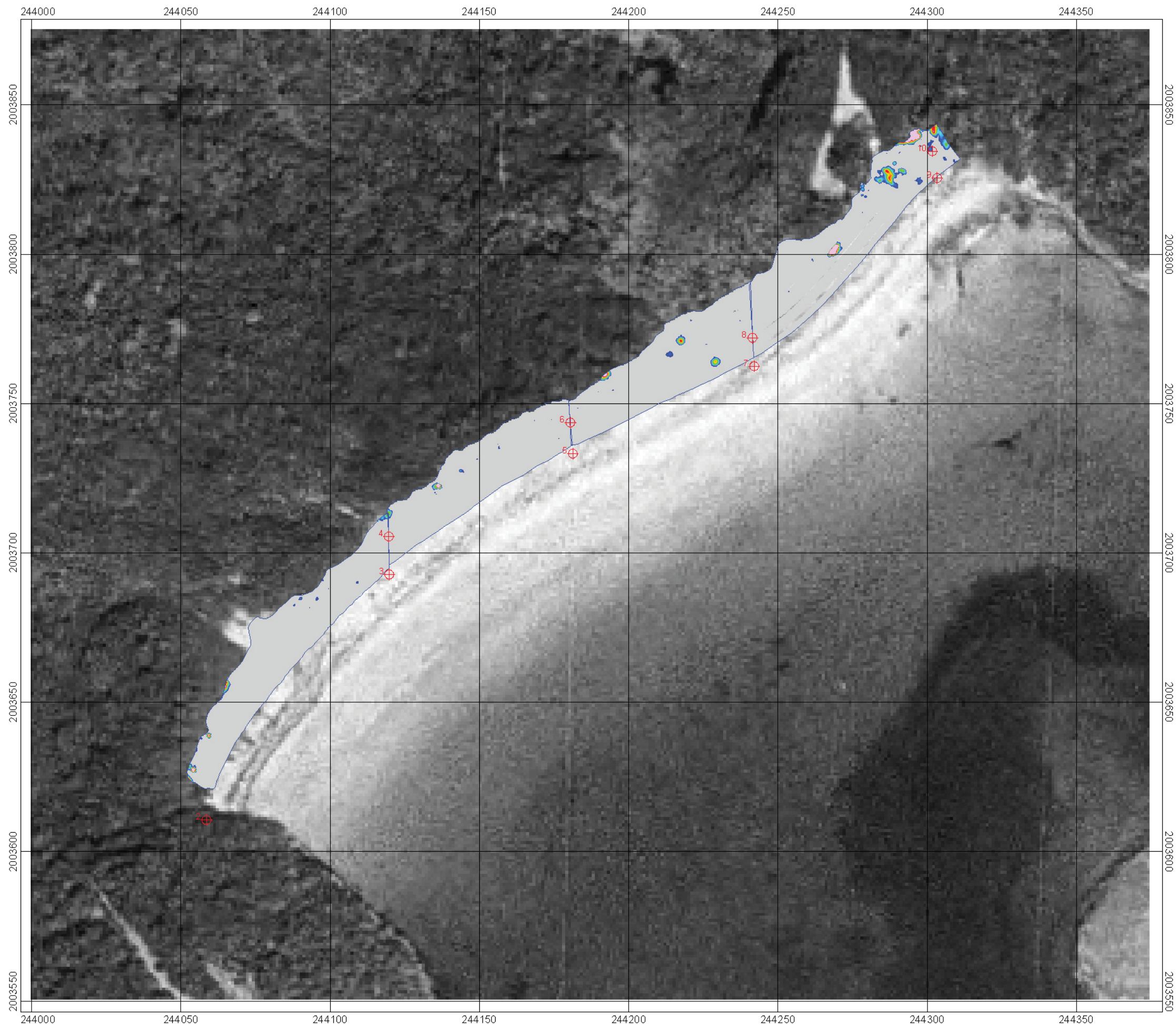


Legend
□ Area of Investigation
x Stake Location



NAEVA GEOPHYSICS INC.
Subsurface Geophysical Surveys

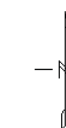
Plate 3
CH2M HILL
EM-61 Bottom Coil
Mosaic
Blue Beach West
Vieques, Puerto Rico
December 2002



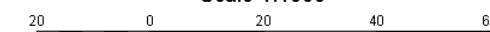
mV

Legend

- Area of Investigation
- Stake Location



Scale 1:1000

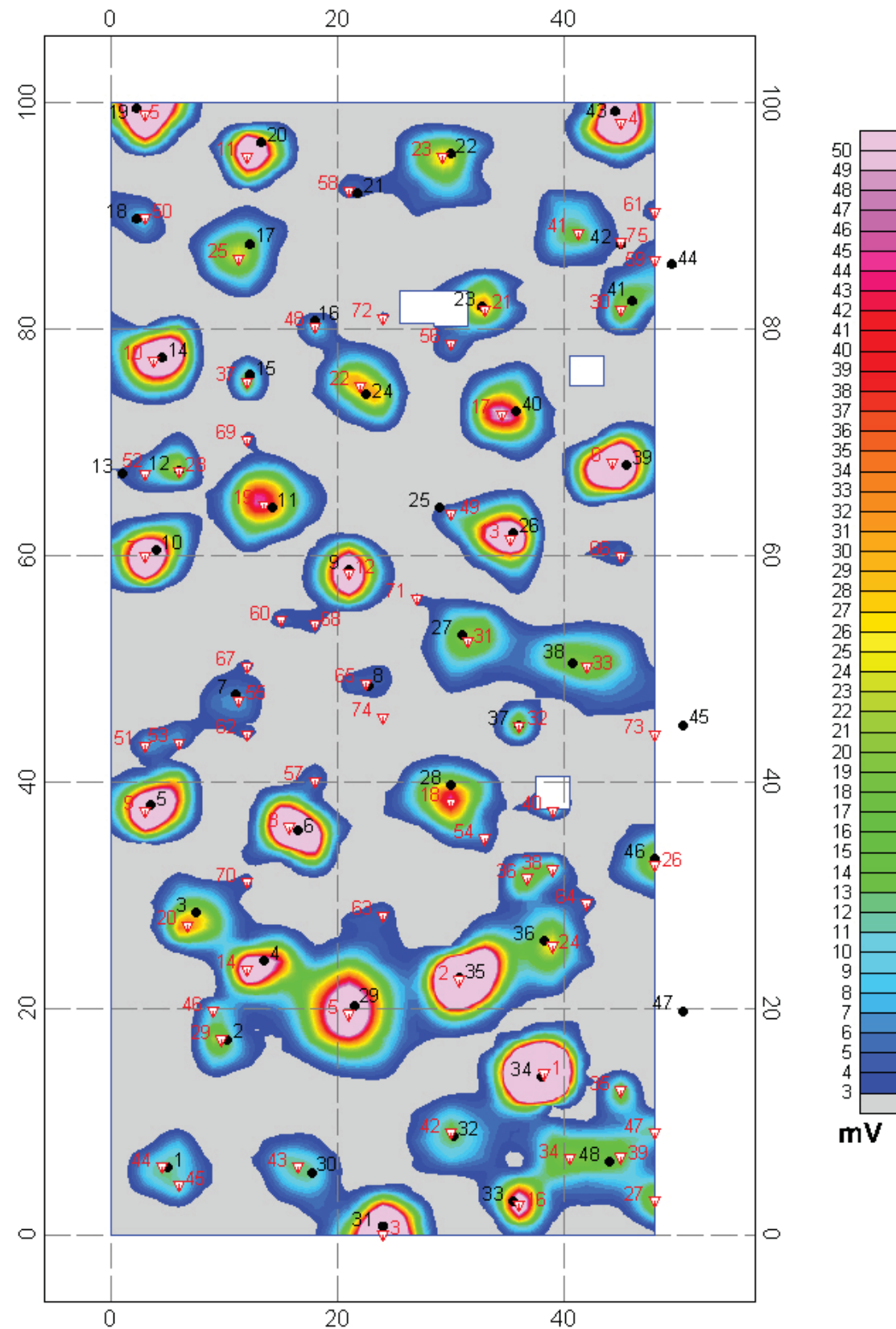


NAD83 / UTM zone 20N

Plate 1

CH2M HILL
EM-61 Bottom Coil
Mosaic
Red Beach West
Vieques, Puerto Rico

December 2002



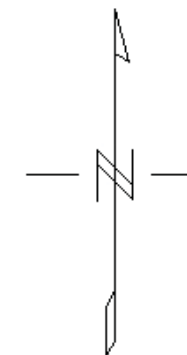
Seeded Items Location and Description

Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction
1	5"/54 Illumination Round	5.00	6.00	48"	Horizontal	NW-SE
2	Mech Time Fuze (projo)	10.25	17.25	4"	N/A	N/A
3	5"/54 Illumination Round	7.50	28.50	36"	45°	Nose Down
4	5" ZUNI Rocket Fin Assembly	13.50	24.25	6"	H	E-W
5	MK 230 Bomb Tail fuze	3.50	38.00	14"	H	N-S
6	MK 230 Bomb Tail fuze	16.50	35.75	16"	H	N-S
7	5"/54 Illumination Round	11.00	47.75	48"	H	NW-SE
8	20 MM HE (UNFUZED)	22.75	48.50	3"	V	N/A
9	MK 230 Bomb Tail fuze	21.00	58.75	14"	V	N/A
10	MK 230 Bomb Tail fuze	4.00	60.50	10"	H	N/A
11	5"/54 Illumination Round	14.25	64.25	25"	45°	Nose Down
12	40 MM CTG (Aluminum)	6.00	67.50	2"	H	N - S
13	20 MM HE (UNFUZED)	1.00	67.25	2"	H	N/A
14	3" Projectile HE (UNFUZED)	4.50	77.50	18"	H	E - W
15	20 MM HE (UNFUZED)	12.25	76.00	3"	H	N/A
16	20 MM HE (SIMULATOR)	18.00	80.75	4"	H	N/A
17	5"/54 Illumination Round	12.25	87.50	30"	V	Nose Down
18	3" Projectile HE (UNFUZED)	2.25	89.75	34"	45°	Nose Down
19	5" ZUNI Rocket Fin Assembly	2.25	99.50	10"	H	E - W
20	3" CTG Case (Aluminum)	13.25	96.50	6"	H	N/A
21	20 MM HE (UNFUZED)	21.75	92.00	2"	H	N/A
22	5"/54 Illumination Round	30.00	95.50	34"	H	NE-SW
23	3" CTG Case (Aluminum)	32.75	82.00	6"	V	N/A
24	3" Projectile HE (UNFUZED)	22.50	74.25	24"	H	E - W
25	20 MM HE (UNFUZED)	29.00	64.25	4"	H	N/A
26	81 MM Tail Boom Assy	35.50	62.00	7"	H	N/A
27	5"/54 Illumination Round	31.00	53.00	38"	H	N - S
28	3" Projectile HE (UNFUZED)	30.00	39.75	16"	H	E - W
29	JATO bottle	21.50	20.25	44"	H	N - S
30	5"/54 Illumination Round	17.75	5.50	42"	H	N - S
31	3" Projectile HE (UNFUZED)	24.00	0.75	5"	H	N - S
32	5"/54 Illumination Round	30.25	8.75	38"	H	E - W
33	MK7 Igniter WP	35.50	3.00	5"	N/A	N/A
34	20 MM Ammo Can Lid	38.00	14.00	2"	H	N - S
35	3" Projectile HE (UNFUZED)	30.75	22.75	5"	H	N - S
36	5"/54 Illumination Round	38.25	26.00	32"	H	N - S
37	20 MM HE (UNFUZED)	36.00	45.00	4"	N/A	N/A
38	2.75" Rocket Motor	40.75	50.50	30"	H	N - S
39	MK 230 Bomb Tail fuze	45.50	68.00	4"	H	N - S
40	5" ZUNI Rocket Fin Assembly	35.75	72.75	14"	H	E-W
41	M344 Bomb Nose Fuze	46.00	82.50	5"	N/A	N/A
42	5"/54 Illumination Round	45.00	87.50	40"	H	NE-SW
43	MK 230 Bomb Tail fuze	44.50	99.25	10"	H	E - W
44	20 MM HE (UNFUZED)	49.50	85.75	3"	V	N/A
45	81 MM Tail Boom Assy	50.50	45.00	8"	45°	Nose Down
46	3" Projectile HE (UNFUZED)	48.00	33.25	26"	V	Nose Down
47	M84 Fuze Time (Nose)	50.50	19.75	4"	N/A	N/A
48	5" HVAR Rocket Motor	44.00	6.50	48"	h	E - W

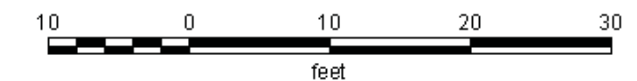
Legend

- Area of Investigation
- Selected Target
- Seeded Target
(See table for location and description)

For details on Selected Targets and please see Prove Out Target Comparison Table



Scale 1:180



CH2M HILL

EM-61 Bottom Coil
Pre Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico

December 3, 2002

CH2M HILL
Pre Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico
Date of Survey: December 3, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting (ft)	Northing (ft)	Grid Value (mV)
1	PO-1	38.25	14.25	1244.89
2	PO-2	30.75	22.50	369.20
3	PO-3	24.00	0.00	228.75
4	PO-4	45.00	98.25	191.37
5	PO-5	3.00	99.00	166.11
6	PO-6	44.25	68.25	159.82
7	PO-7	3.00	60.00	150.13
8	PO-8	15.75	36.00	143.73
9	PO-9	3.00	37.50	131.56
10	PO-10	3.75	77.25	122.31
11	PO-11	12.00	95.25	108.27
12	PO-12	21.00	58.50	101.52
13	PO-13	35.25	61.50	100.82
14	PO-14	12.00	23.44	93.00
15	PO-15	21.00	19.50	86.81
16	PO-16	36.00	2.69	71.25
17	PO-17	34.50	72.50	50.61
18	PO-18	30.00	38.25	47.79
19	PO-19	13.50	64.50	45.67
20	PO-20	6.75	27.31	33.37
21	PO-21	33.00	81.75	32.95
22	PO-22	22.00	75.00	31.99
23	PO-23	29.25	95.25	27.37
24	PO-24	39.00	25.50	27.00
25	PO-25	11.25	86.25	24.24
26	PO-26	48.00	32.66	23.25
27	PO-27	48.00	3.00	23.24
28	PO-28	6.00	67.50	23.24
29	PO-29	9.75	17.25	21.75
30	PO-30	45.00	81.75	21.00
31	PO-31	31.50	52.50	20.69
32	PO-32	36.00	45.00	20.63
33	PO-33	42.00	50.25	20.62
34	PO-34	40.50	6.75	19.29
35	PO-35	45.00	12.75	18.72
36	PO-36	36.75	31.50	17.90
37	PO-37	12.00	75.39	16.50
38	PO-38	39.00	32.25	16.38
39	PO-39	45.00	6.86	16.13
40	PO-40	39.00	37.50	14.45
41	PO-41	41.25	88.50	14.44
42	PO-42	30.00	9.00	14.25
43	PO-43	16.50	6.00	12.90
44	PO-44	4.50	6.00	12.07

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CH2M HILL
Pre Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico
Date of Survey: December 3, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting (ft)	Northing (ft)	Grid Value (mV)
45	PO-45	6.00	4.44	12.00
46	PO-46	9.00	19.76	12.00
47	PO-47	48.00	9.00	11.99
48	PO-48	18.00	80.25	11.15
49	PO-49	30.00	63.75	9.00
50	PO-50	3.00	89.84	9.00
51	PO-51	3.00	43.25	7.50
52	PO-52	3.00	67.19	7.50
53	PO-53	6.00	43.50	7.40
54	PO-54	33.00	35.00	7.13
55	PO-55	11.25	47.25	6.66
56	PO-56	30.00	78.75	6.54
57	PO-57	18.00	40.08	5.81
58	PO-58	21.00	92.25	5.81
59	PO-59	48.00	86.15	5.53
60	PO-60	15.00	54.30	5.25
61	PO-61	48.00	90.39	5.25
62	PO-62	12.00	44.25	5.25
63	PO-63	24.00	28.23	5.25
64	PO-64	42.00	29.25	5.01
65	PO-65	22.50	48.75	4.53
66	PO-66	45.00	60.00	4.31
67	PO-67	12.00	50.25	3.75
68	PO-68	18.00	54.00	3.75
69	PO-69	12.00	70.24	3.75
70	PO-70	12.00	31.15	3.75
71	PO-71	27.00	56.25	3.56
72	PO-72	24.00	81.00	3.52
73	PO-73	48.00	44.25	3.37
74	PO-74	24.00	45.75	3.00
75	PO-75	45.00	87.70	3.00

CH2M HILL
Pre Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico

Target Comparison Table (EM-61)

Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction	NAEVA Target ID	x (ft)	y (ft)	Grid Value (mV)	Offset
1	5"/54 Illumination Round	5.00	6.00	48"	Horizontal	NW-SE	44	4.50	6.00	12.07	0.50
2	Mech Time Fuze (projo)	10.25	17.25	4"	N/A	N/A	29	9.75	17.25	21.75	0.50
3	5"/54 Illumination Round	7.50	28.50	36"	45°	Nose Down	20	6.75	27.31	33.37	1.41
4	5" ZUNI Rocket Fin Assembly	13.50	24.25	6"	H	E-W	14	12.00	23.44	93.00	1.71
5	MK 230 Bomb Tail fuze	3.50	38.00	14"	H	N-S	9	3.00	37.50	131.56	0.71
6	MK 230 Bomb Tail fuze	16.50	35.75	16"	H	N-S	8	15.75	36.00	143.73	0.79
7	5"/54 Illumination Round	11.00	47.75	48"	H	NW-SE	55	11.25	47.25	6.66	0.56
8	20 MM HE (UNFUZED)	22.75	48.50	3"	V	N/A	65	22.50	48.75	4.53	0.35
9	MK 230 Bomb Tail fuze	21.00	58.75	14"	V	N/A	12	21.00	58.50	101.52	0.25
10	MK 230 Bomb Tail fuze	4.00	60.50	10"	H	N/A	7	3.00	60.00	150.13	1.12
11	5"/54 Illumination Round	14.25	64.25	25"	45°	Nose Down	19	13.50	64.50	45.67	0.79
12	40 MM CTG (Aluminum)	6.00	67.50	2"	H	N - S	28	6.00	67.50	23.24	0.00
13	20 MM HE (UNFUZED)	1.00	67.25	2"	H	N/A	52	3.00	67.19	7.50	2.00
14	3" Projectile HE (UNFUZED)	4.50	77.50	18"	H	E - W	10	3.75	77.25	122.31	0.79
15	20 MM HE (UNFUZED)	12.25	76.00	3"	H	N/A	37	12.00	75.39	16.50	0.66
16	20 MM HE (SIMULATOR)	18.00	80.75	4"	H	N/A	48	18.00	80.25	11.15	0.50
17	5"/54 Illumination Round	12.25	87.50	30"	V	Nose Down	25	11.25	86.25	24.24	1.60
18	3" Projectile HE (UNFUZED)	2.25	89.75	34"	45°	Nose Down	50	3.00	89.84	9.00	0.76
19	5" ZUNI Rocket Fin Assembly	2.25	99.50	10"	H	E - W	5	3.00	99.00	166.11	0.90
20	3" CTG Case (Aluminum)	13.25	96.50	6"	H	N/A	11	12.00	95.25	108.27	1.77
21	20 MM HE (UNFUZED)	21.75	92.00	2"	H	N/A	58	21.00	92.25	5.81	0.79
22	5"/54 Illumination Round	30.00	95.50	34"	H	NE-SW	23	29.25	95.25	27.37	0.79
23	3" CTG Case (Aluminum)	32.75	82.00	6"	V	N/A	21	33.00	81.75	32.95	0.35
24	3" Projectile HE (UNFUZED)	22.50	74.25	24"	H	E - W	22	22.00	75.00	31.99	0.90
25	20 MM HE (UNFUZED)	29.00	64.25	4"	H	N/A	49	30.00	63.75	9.00	1.12
26	81 MM Tail Boom Assy	35.50	62.00	7"	H	N/A	13	35.25	61.50	100.82	0.56
27	5"/54 Illumination Round	31.00	53.00	38"	H	N - S	31	31.50	52.50	20.69	0.71
28	3" Projectile HE (UNFUZED)	30.00	39.75	16"	H	E - W	18	30.00	38.25	47.79	1.50
29	JATO bottle	21.50	20.25	44"	H	N - S	15	21.00	19.50	86.81	0.90
30	5"/54 Illumination Round	17.75	5.50	42"	H	N - S	43	16.50	6.00	12.90	1.35
31	3" Projectile HE (UNFUZED)	24.00	0.75	5"	H	N - S	3	24.00	0.00	228.75	0.75
32	5"/54 Illumination Round	30.25	8.75	38"	H	E - W	42	30.00	9.00	14.25	0.35

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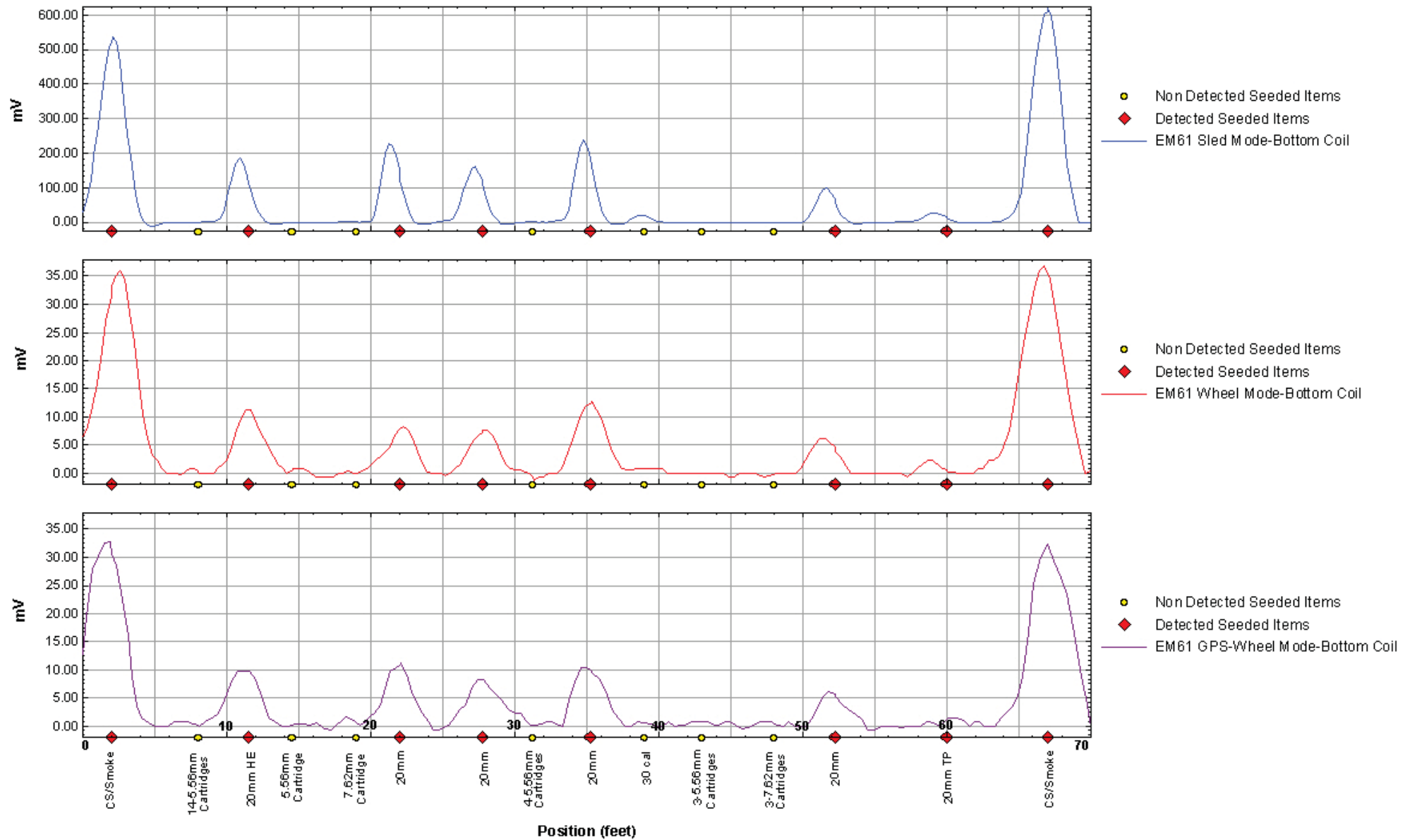
CH2M HILL
Pre Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico

Target Comparison Table (EM-61)

Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction	NAEVA Target ID	x (ft)	y (ft)	Grid Value (mV)	Offset
33	MK7 Igniter WP	35.50	3.00	5"	N/A	N/A	16	36.00	2.69	71.25	0.59
34	20 MM Ammo Can Lid	38.00	14.00	2"	H	N - S	1	38.25	14.25	1244.89	0.35
35	3" Projectile HE (UNFUZED)	30.75	22.75	5"	H	N - S	2	30.75	22.50	369.20	0.25
36	5"/54 Illumination Round	38.25	26.00	32"	H	N - S	24	39.00	25.50	27.00	0.90
37	20 MM HE (UNFUZED)	36.00	45.00	4"	N/A	N/A	32	36.00	45.00	20.63	0.00
38	2.75" Rocket Motor	40.75	50.50	30"	H	N - S	33	42.00	50.25	20.62	1.27
39	MK 230 Bomb Tail fuze	45.50	68.00	4"	H	N - S	6	44.25	68.25	159.82	1.27
40	5" ZUNI Rocket Fin Assembly	35.75	72.75	14"	H	E-W	17	34.50	72.50	50.61	1.27
41	M344 Bomb Nose Fuze	46.00	82.50	5"	N/A	N/A	30	45.00	81.75	21.00	1.25
42	5"/54 Illumination Round	45.00	87.50	40"	H	NE -SW	75	45.00	87.70	3.00	0.20
43	MK 230 Bomb Tail fuze	44.50	99.25	10"	H	E - W	4	45.00	98.25	191.37	1.12
44	20 MM HE (UNFUZED)	49.50	85.75	3"	V	N/A	59*	48.00	86.15	5.53	1.55
45	81 MM Tail Boom Assy	50.50	45.00	8"	45°	Nose Down	2.5 ft East of last line surveyed				
46	3" Projectile HE (UNFUZED)	48.00	33.25	26"	V	Nose Down	26	48.00	32.66	23.25	0.59
47	M84 Fuze Time (Nose)	50.50	19.75	4"	N/A	N/A	2.5 ft East of last line surveyed				
48	5" HVAR Rocket Motor	44.00	6.50	48"	h	E - W	39	45.00	6.86	16.13	1.06

* Seeded Item 44 is 1.5 ft east of last line surveyed

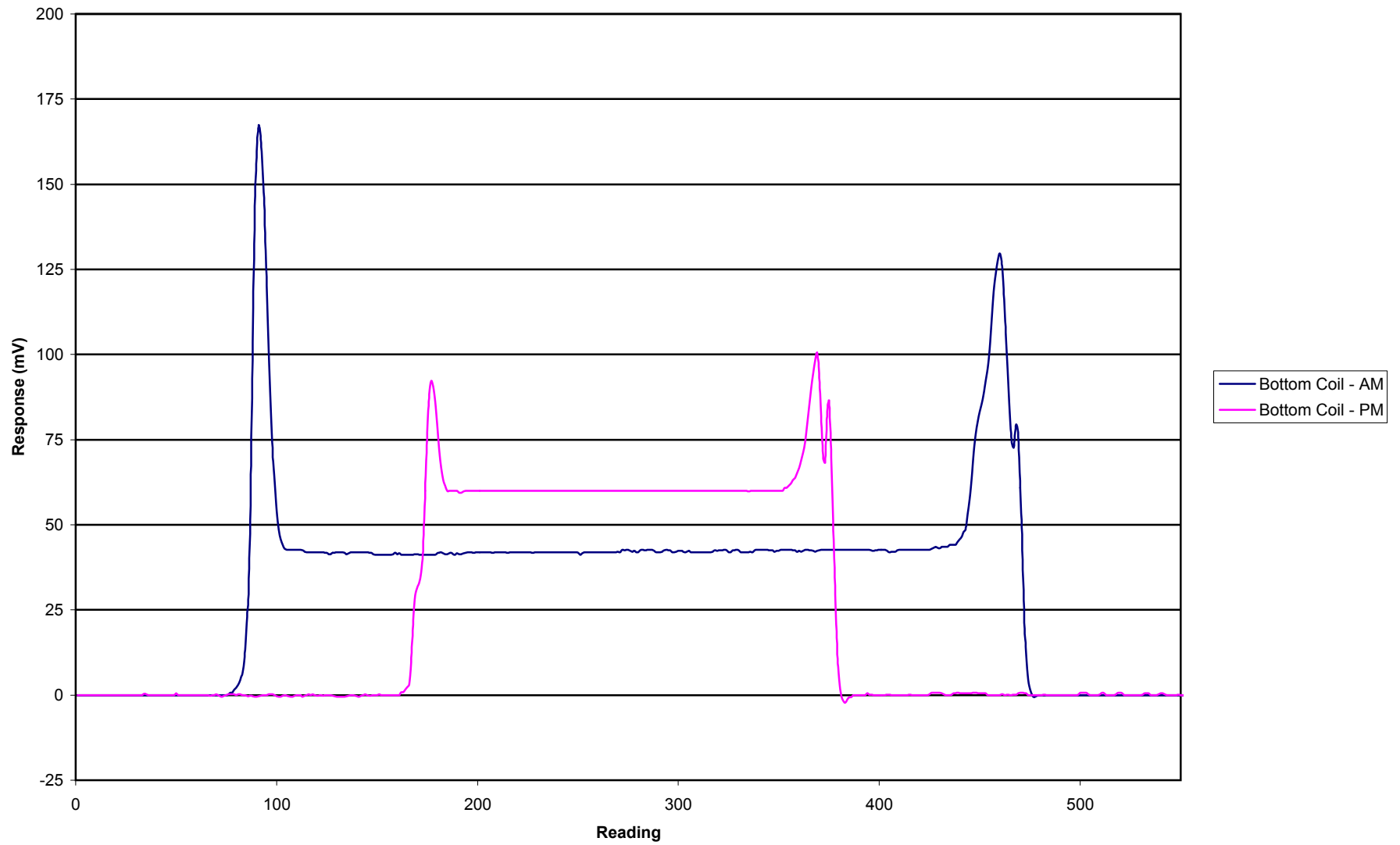
Test Line Method Comparison



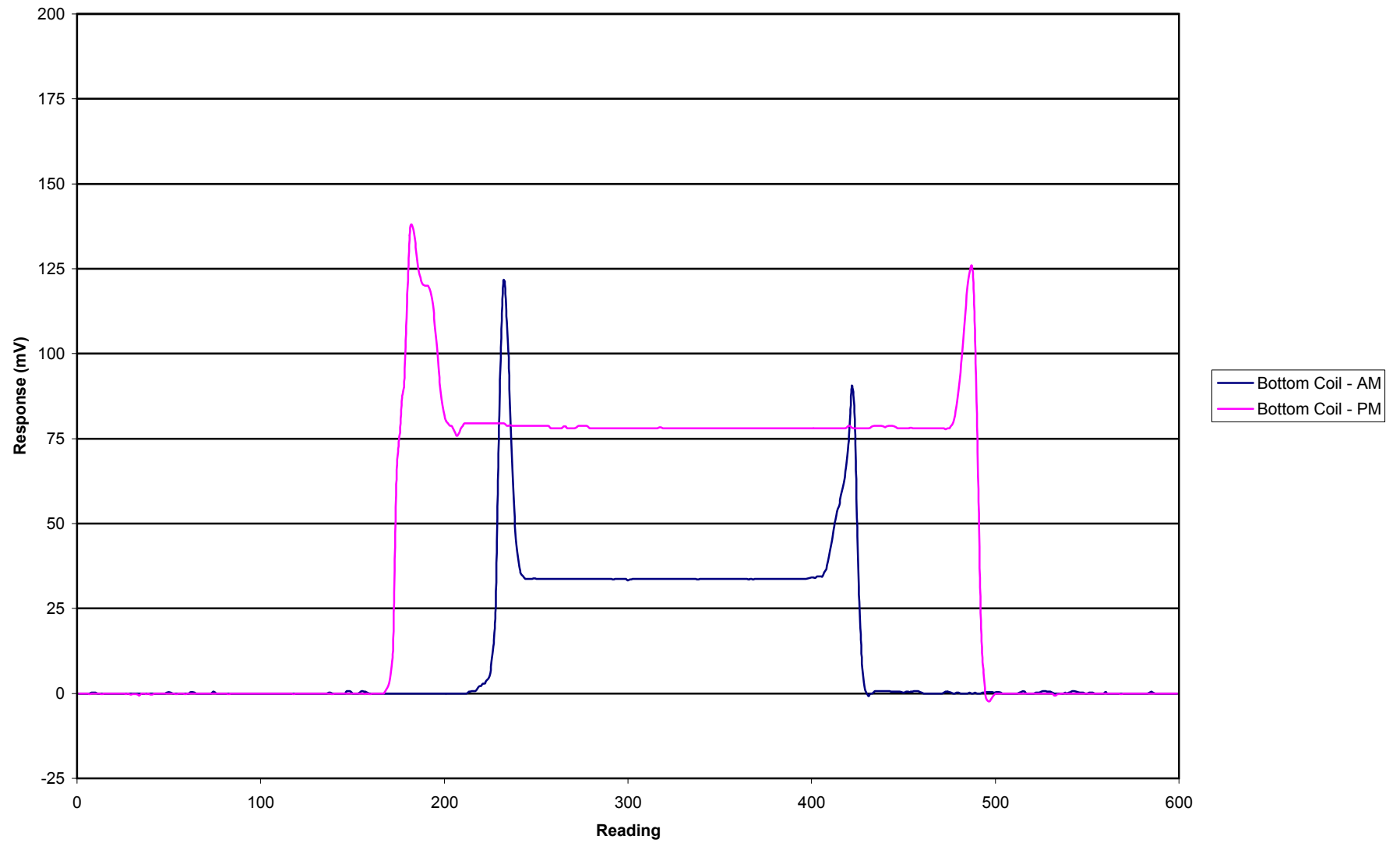
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Test Line Seeded Items
Red and Blue Beach
Vieques, Puerto Rico
December 2002

Position	Description	Depth
0	<i>Stake & Fiducial</i>	
2	CS/Smoke	12"
8	14-5.56mm Rifle Cartridges	4"
11.5	20mm HE Projectile	4"
14.5	5.56mm Rifle Cartridge	1"
19	7.62mm Rifle Cartridge	1"
22	20mm Projectile	2"
27.75	20mm Projectile	6"
31.25	4-5.56mm Rifle Cartridges	4"
34.5	<i>Stake & Fiducial</i>	
35.25	20mm Projectile	3"
39	30 cal Cartridge	2"
43	3-5.56mm Rifle Cartridges	2"
48	3-7.62mm Rifle Cartridges	2"
52.25	20mm Projectile	12"
60	20mm TP Projectile	8"
67	CS/Smoke	10"
70	<i>Stake & Fiducial</i>	

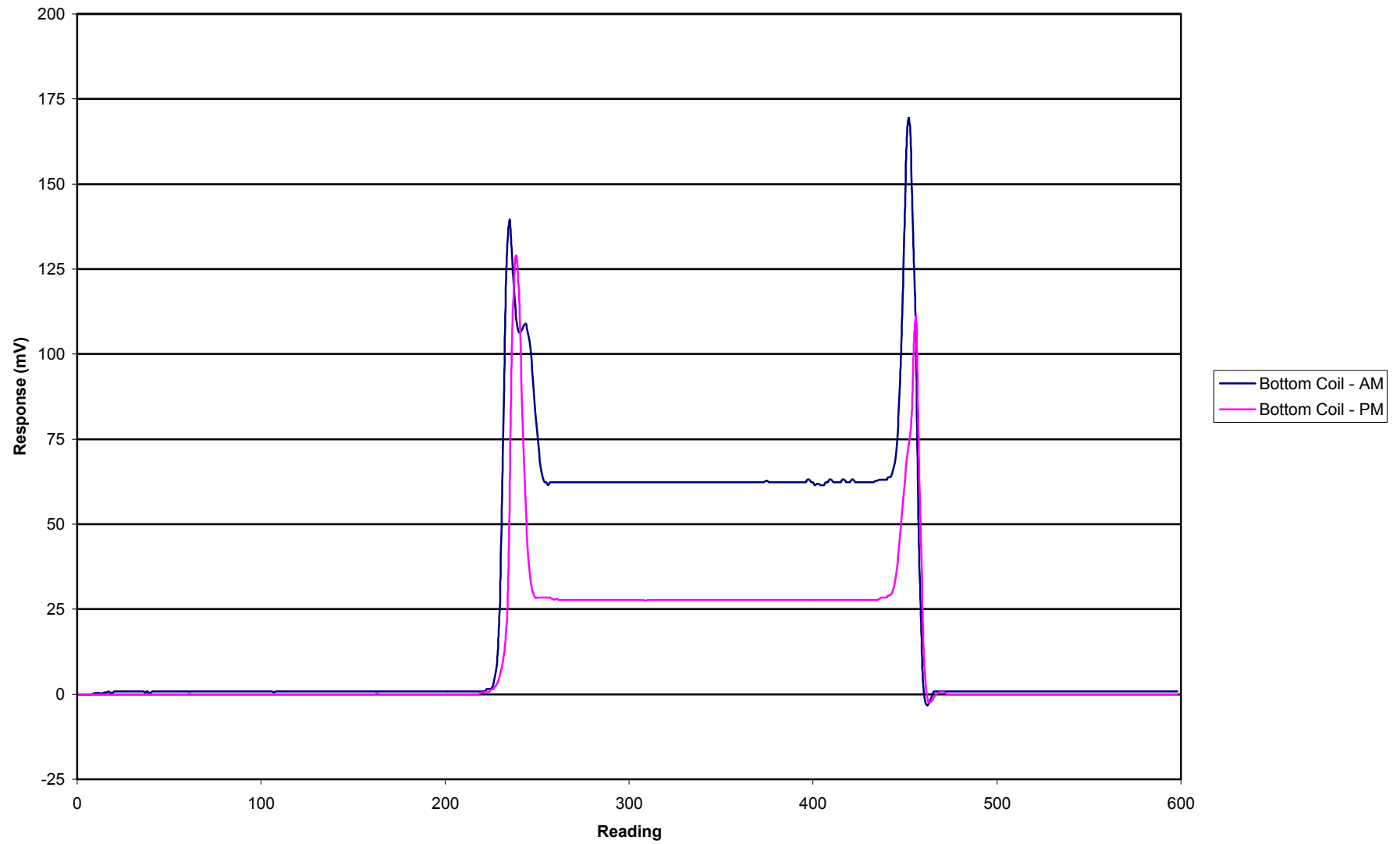
December 5, 2002 - Daily Static Test



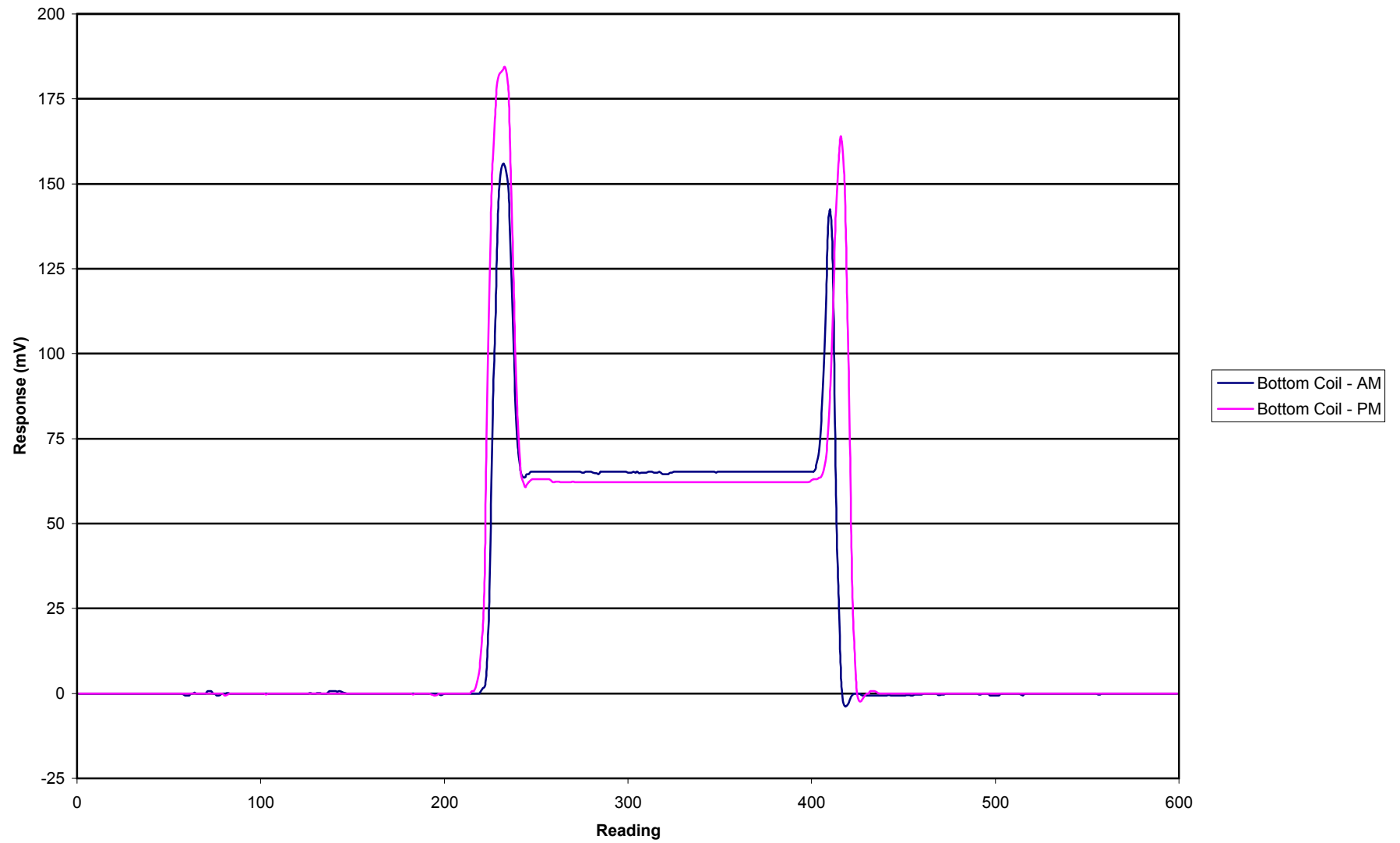
December 6, 2002 - Daily Static Test



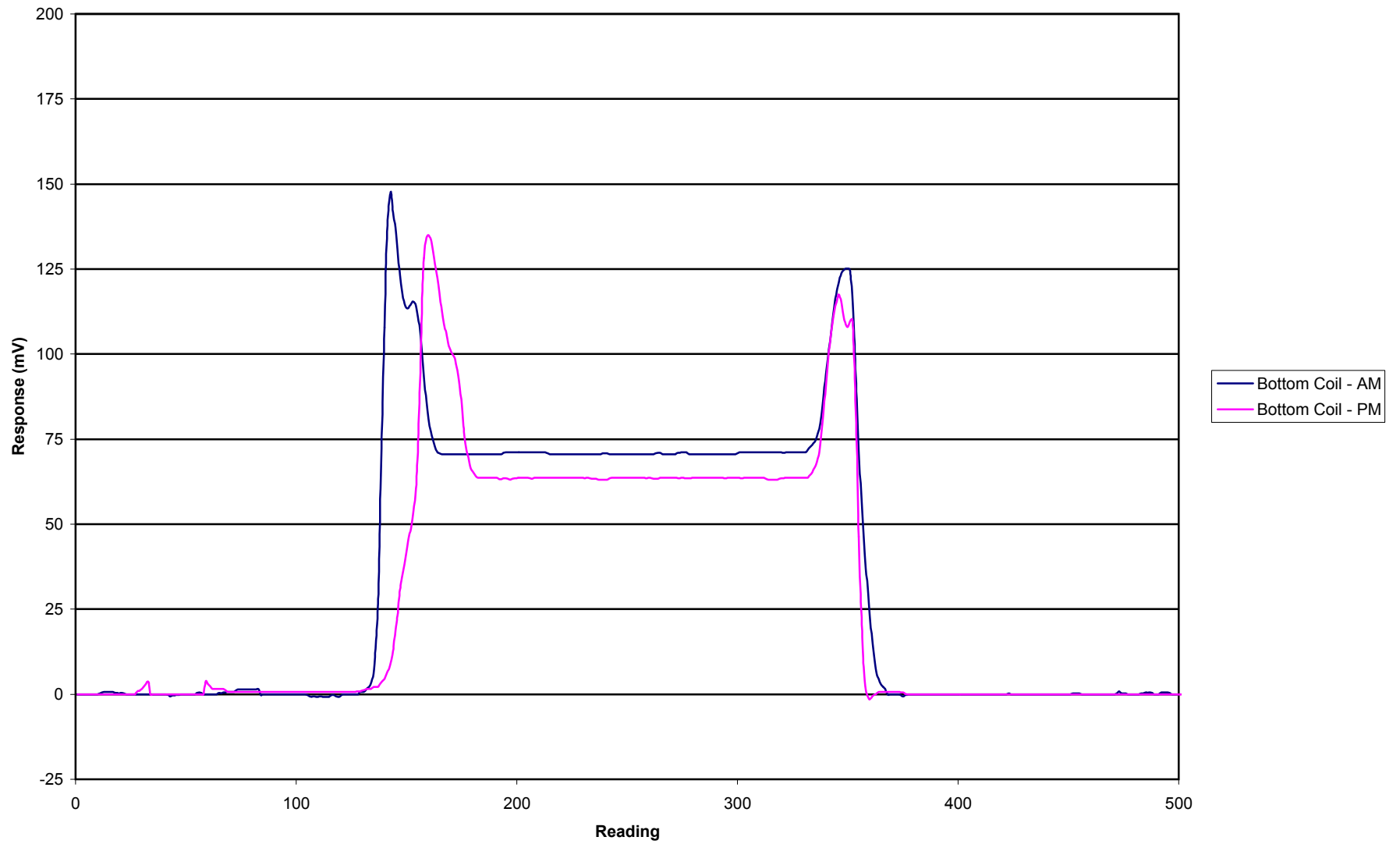
December 9, 2002 - Daily Static Test



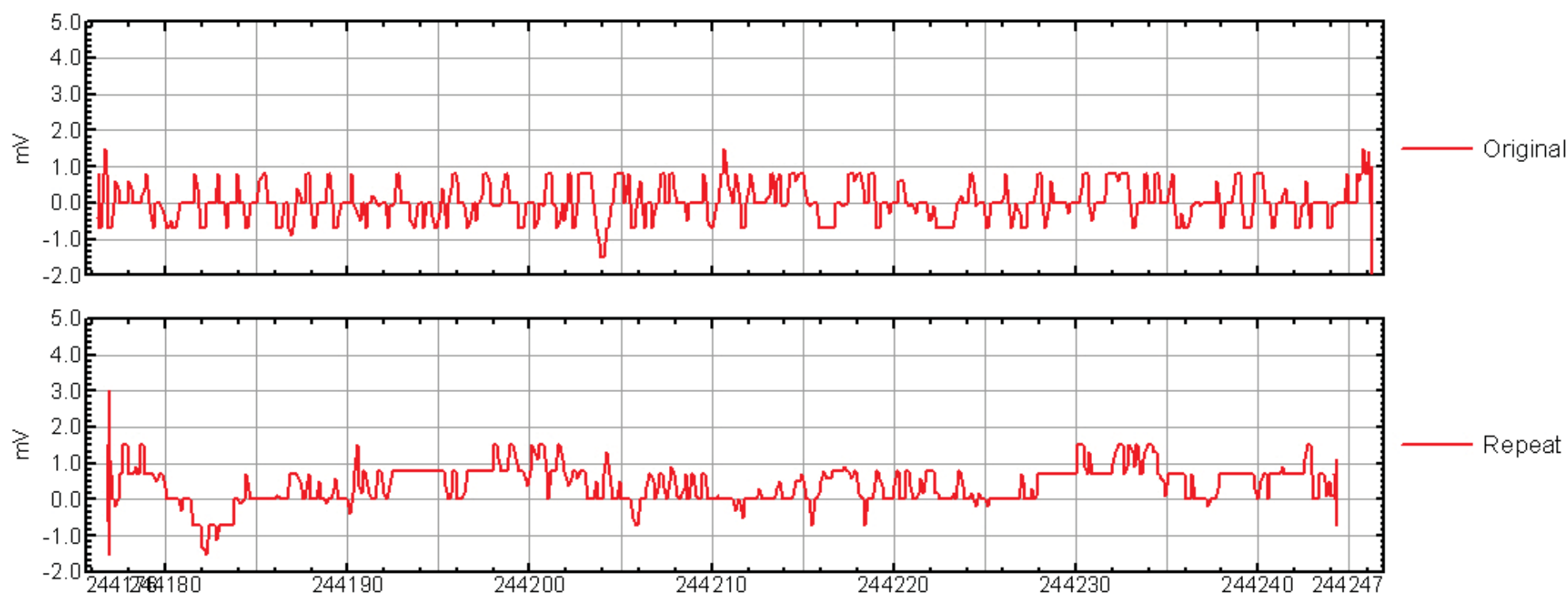
December 12, 2002 - Daily Static Test



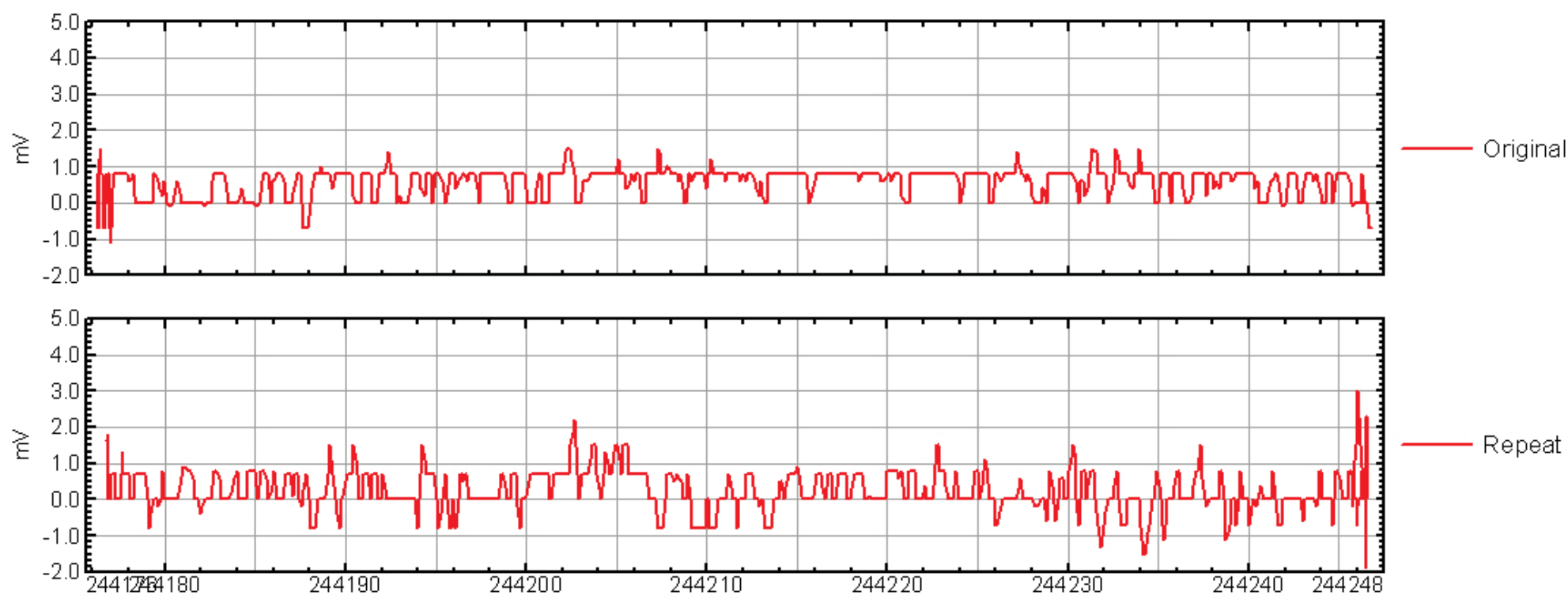
December 16, 2002 - Daily Static Test



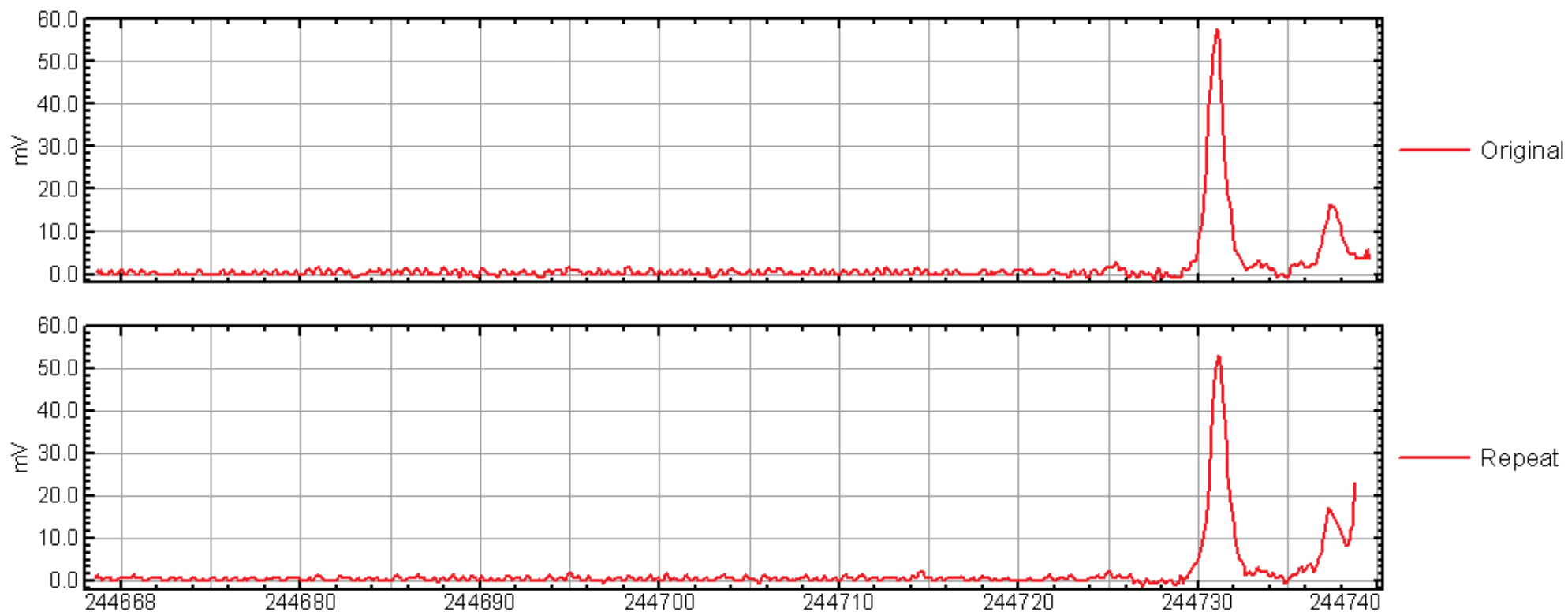
Grid R03 Red Beach West Repeat Line 1



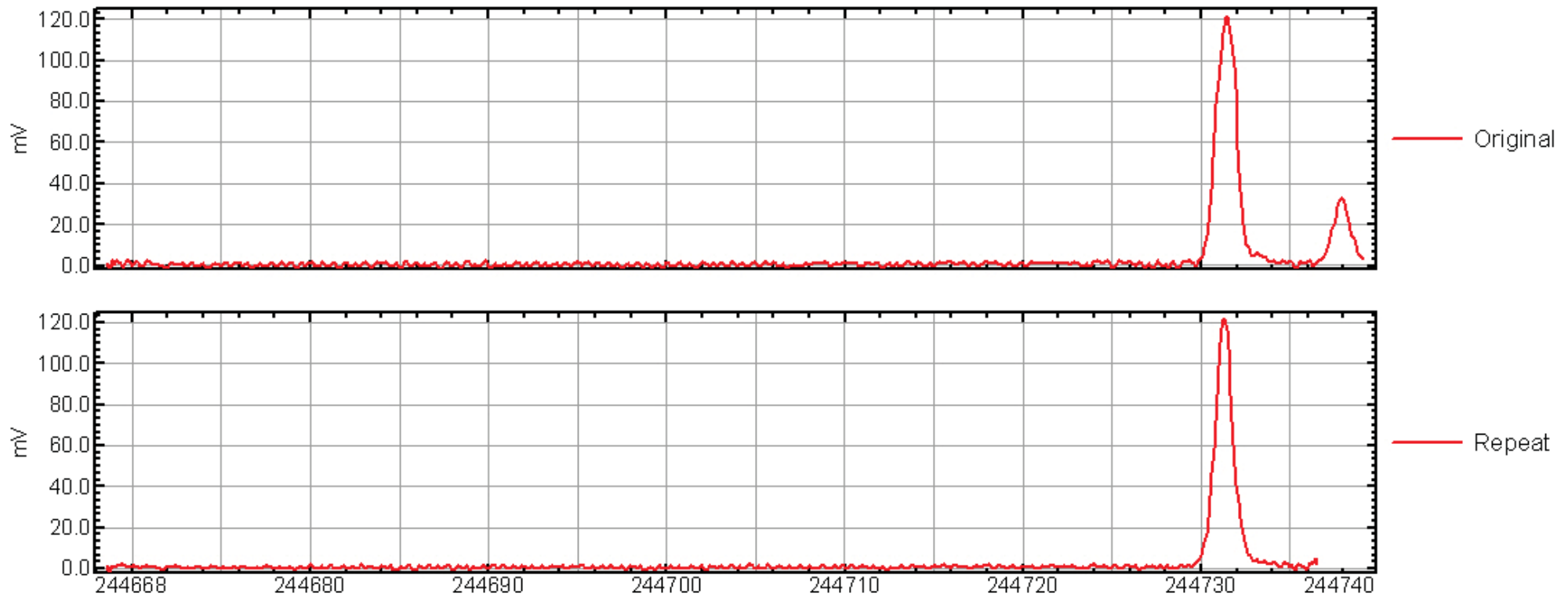
Grid R03 Red Beach West Repeat Line 2



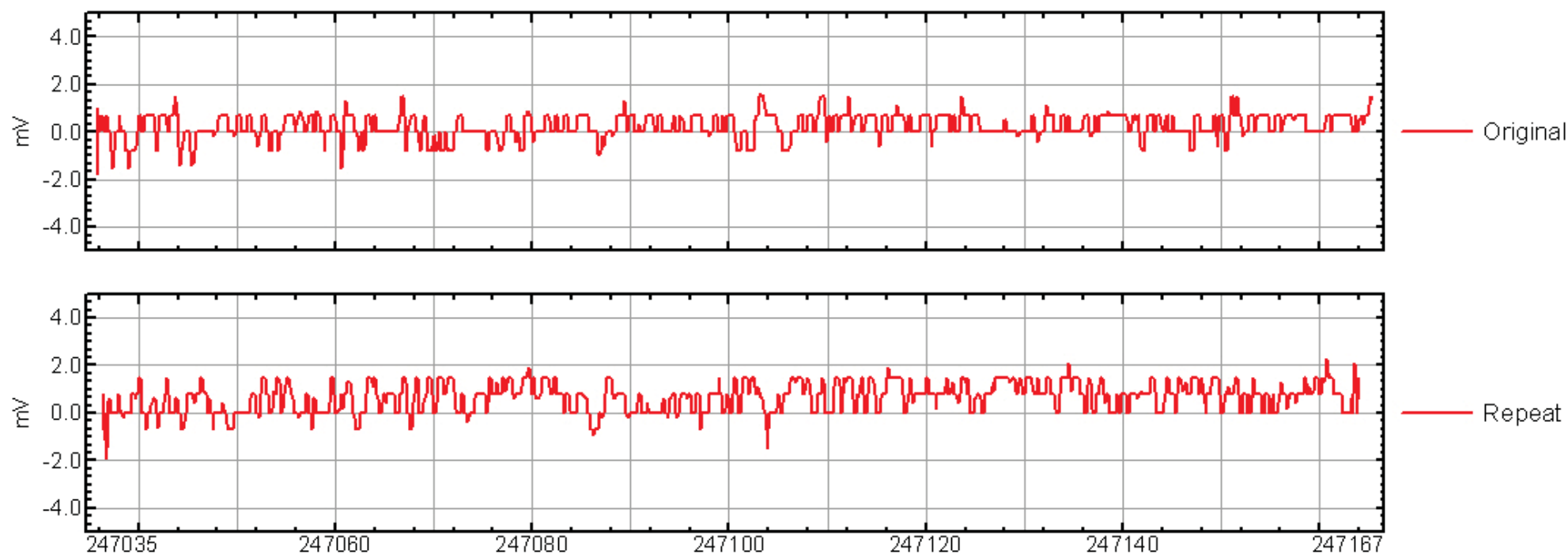
Grid R10 Red Beach East Repeat Line 1



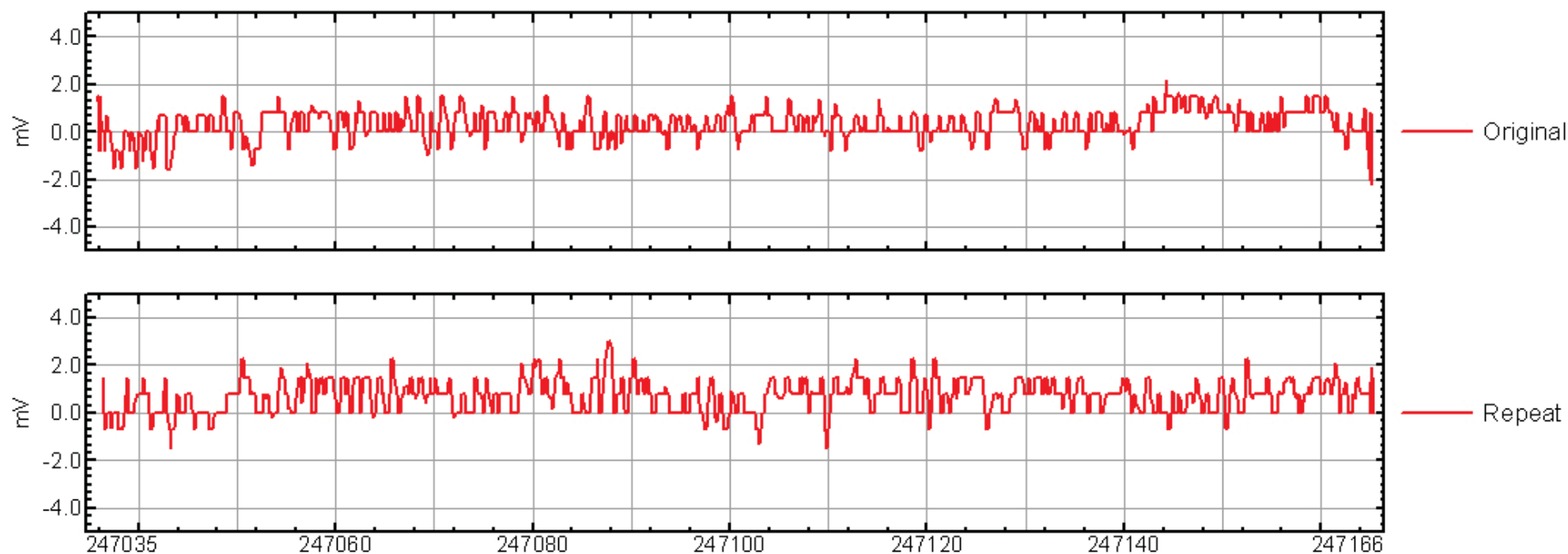
Grid R10 Red Beach East Repeat Line 2



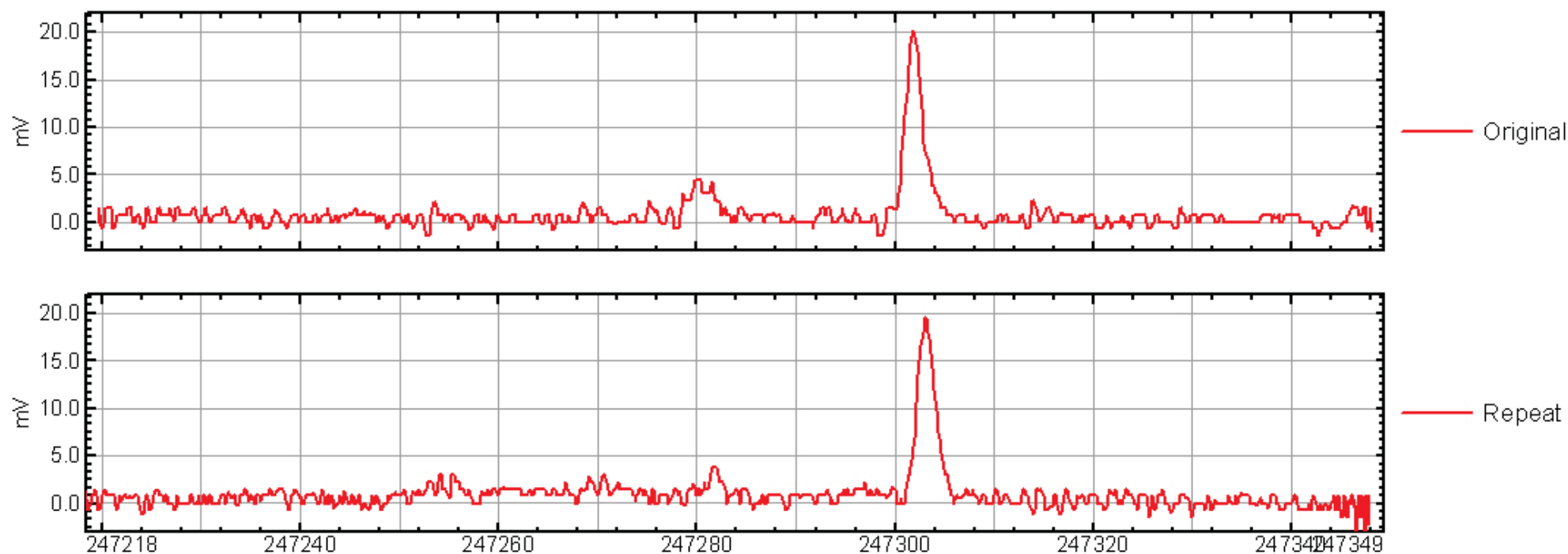
Grids B03 and B04 Blue Beach West Repeat Line 1



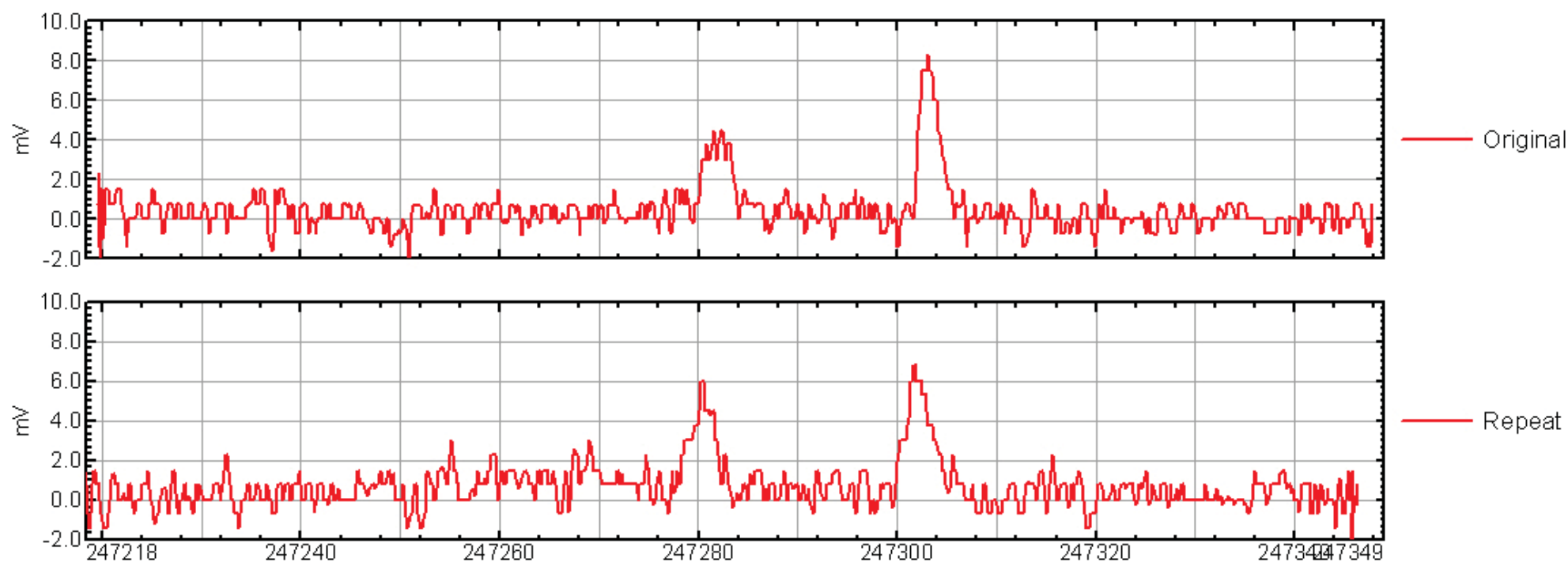
Grids B03 and B04 Blue Beach West Repeat Line 2



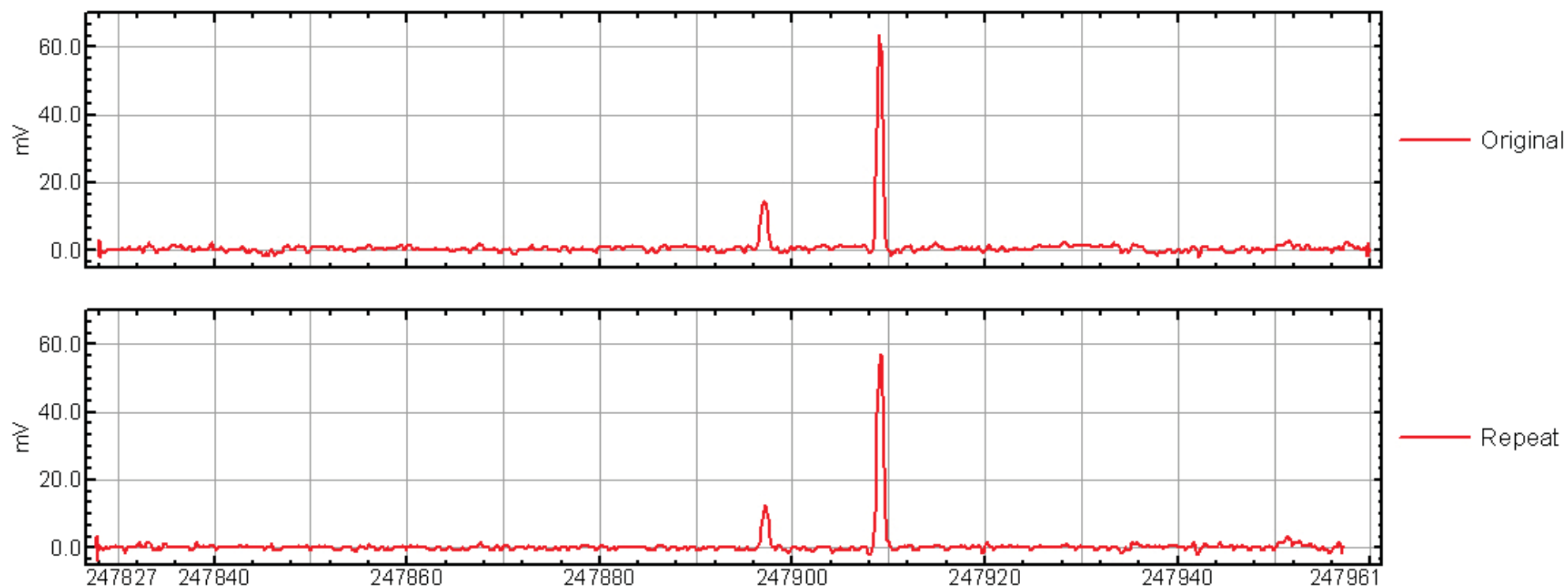
Grids B06 and B07 Blue Beach West Repeat Line 1



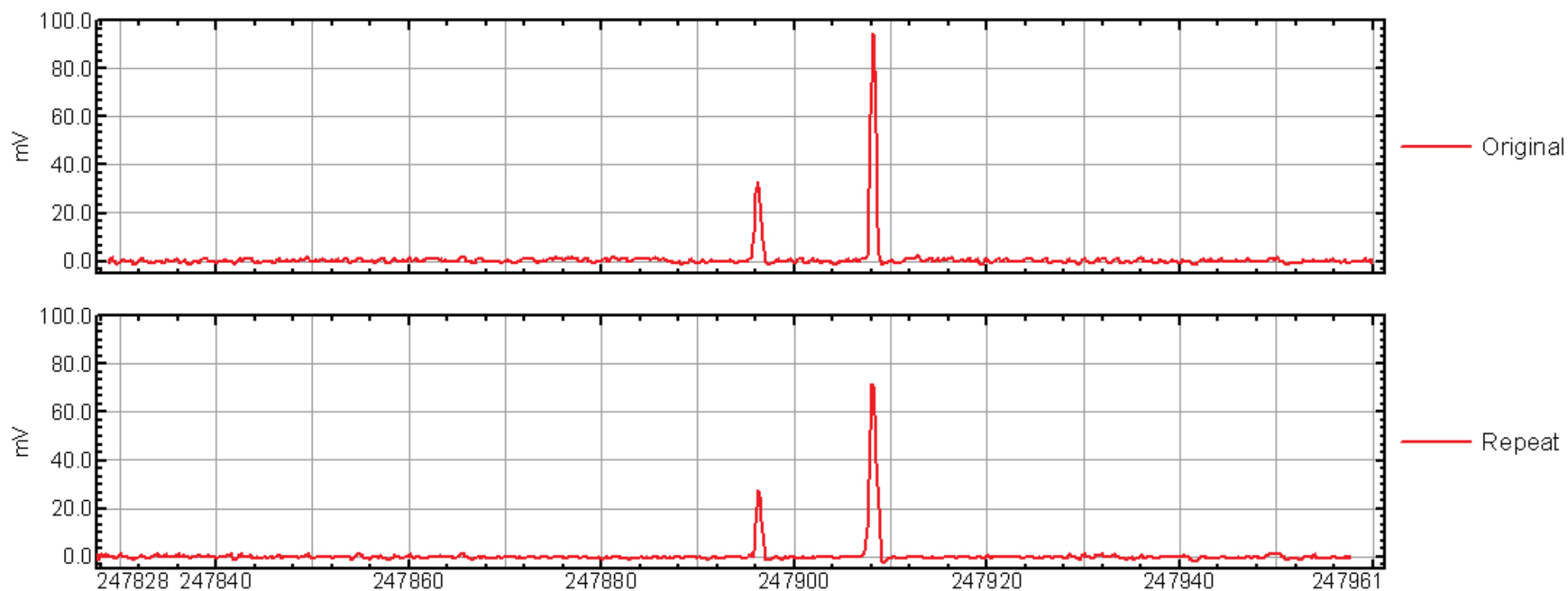
Grids B06 and B07 Blue Beach West Repeat Line 2

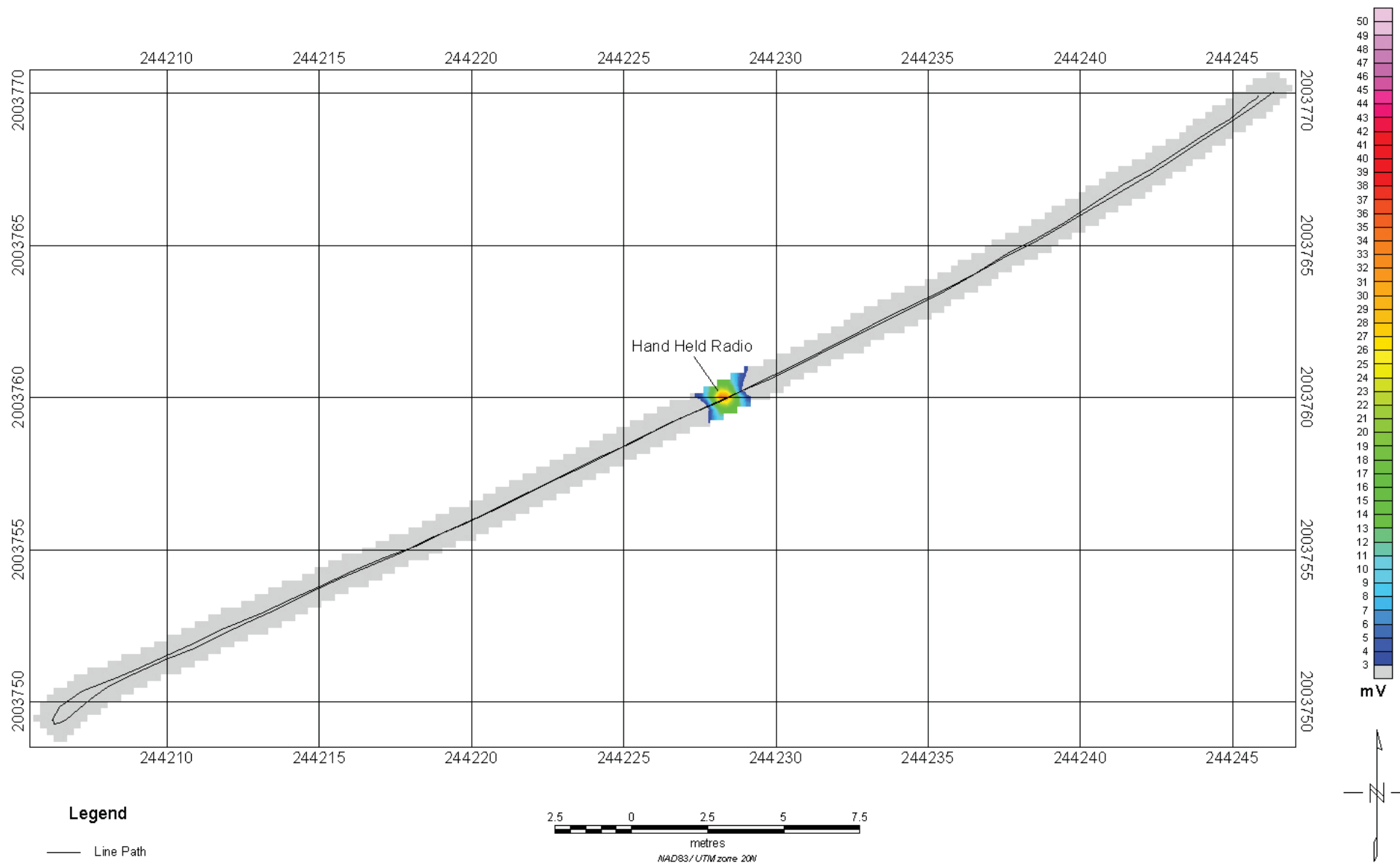


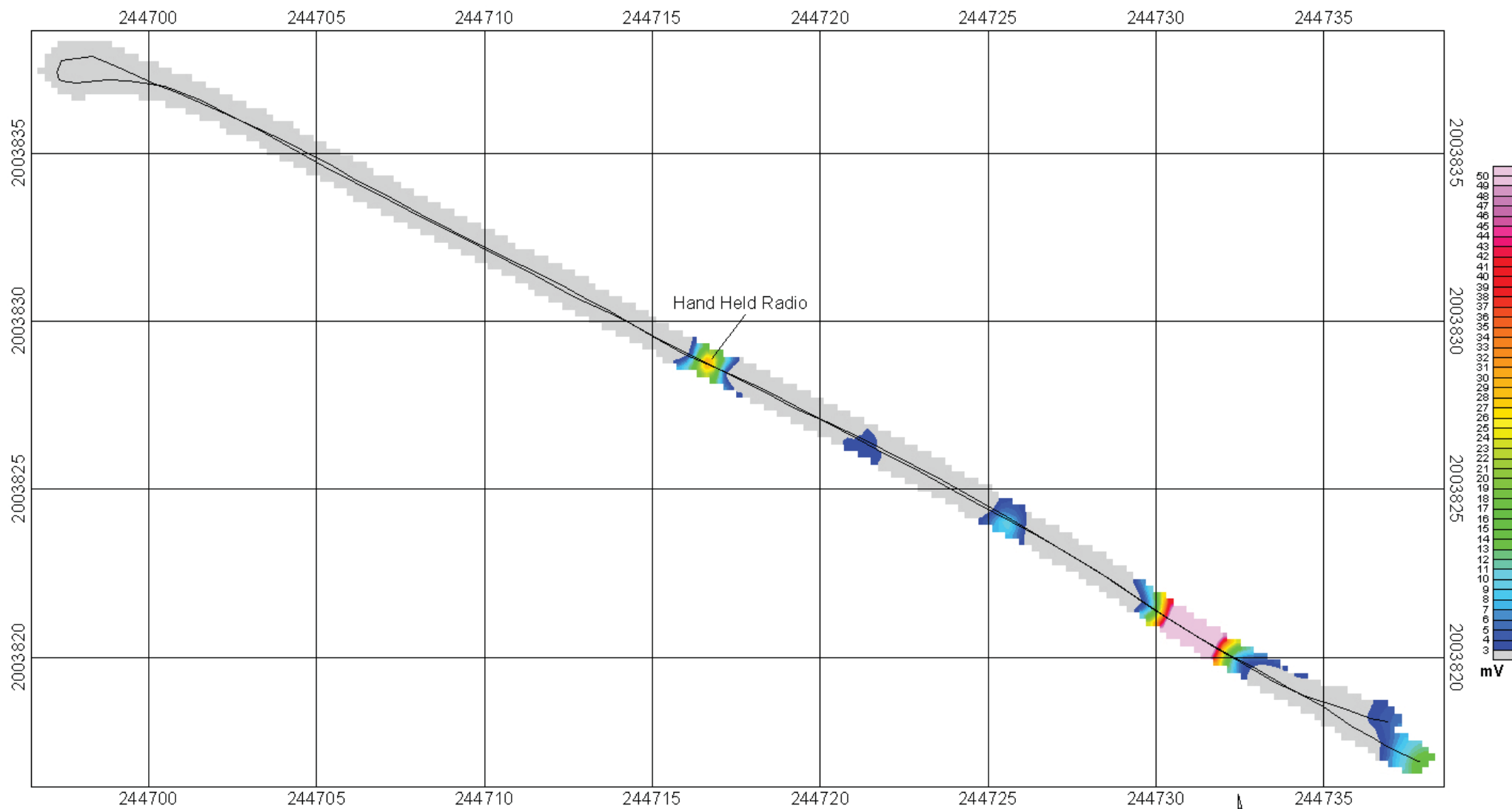
Grids B16 and B17 Blue Beach West Repeat Line 1



Grids B16 and B17 Blue Beach West Repeat Line 2

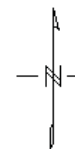
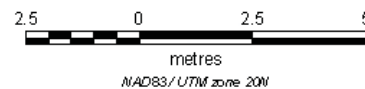






Legend

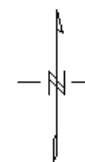
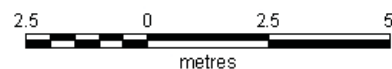
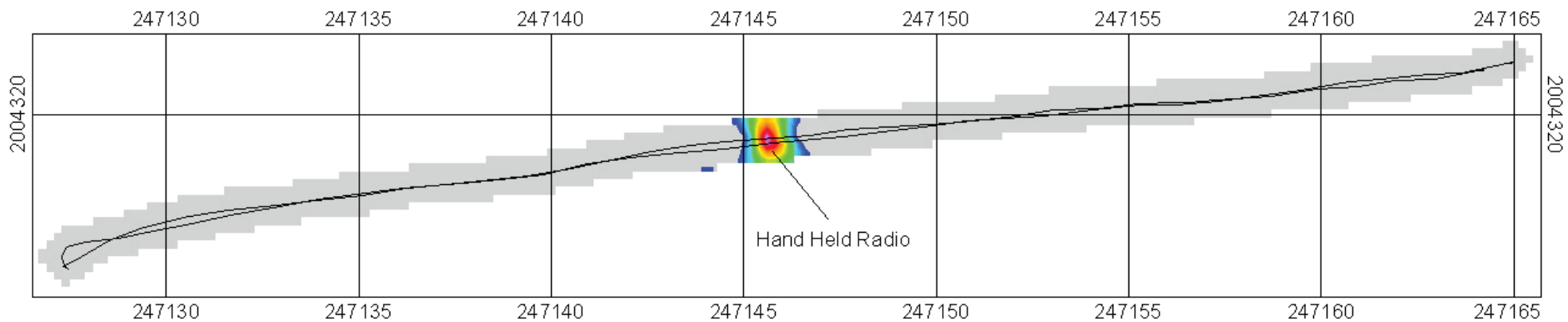
— Line Path



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EM-61 Bottom Coil
Grid R10 - QC Line
Red Beach East
Vieques, Puerto Rico

December 5 & 6, 2002



Legend

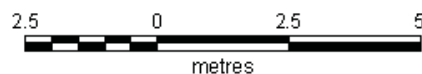
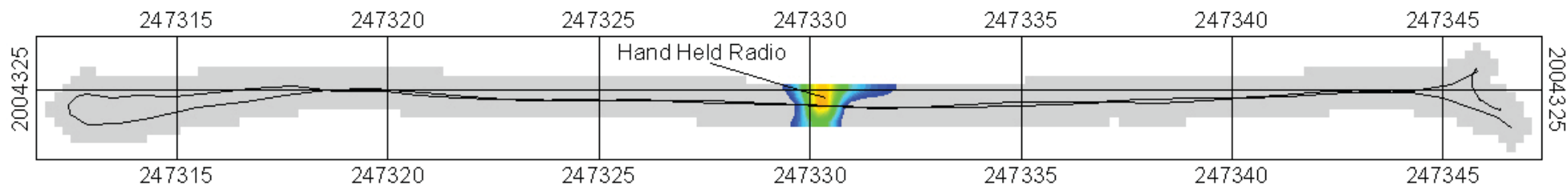
— Line Path



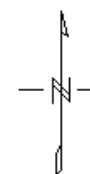
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EM-61 Bottom Coil
Grids B03 and B04 - QC Line
Blue Beach West
Vieques, Puerto Rico

December 12, 2002



NAD83 / UTM zone 20N



Legend

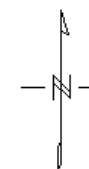
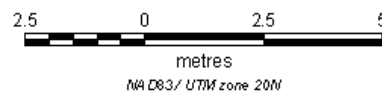
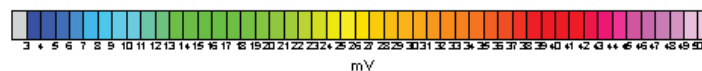
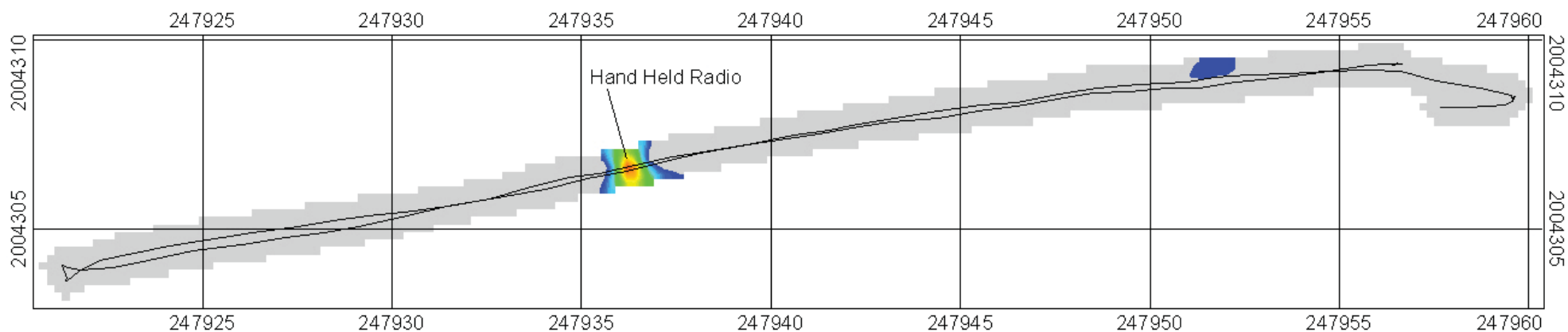
— Line Path



CH2M HILL

EM-61 Bottom Coil
Grids B06 and B07 - QC Line
Blue Beach West
Vieques, Puerto Rico

December 12, 2002



Legend

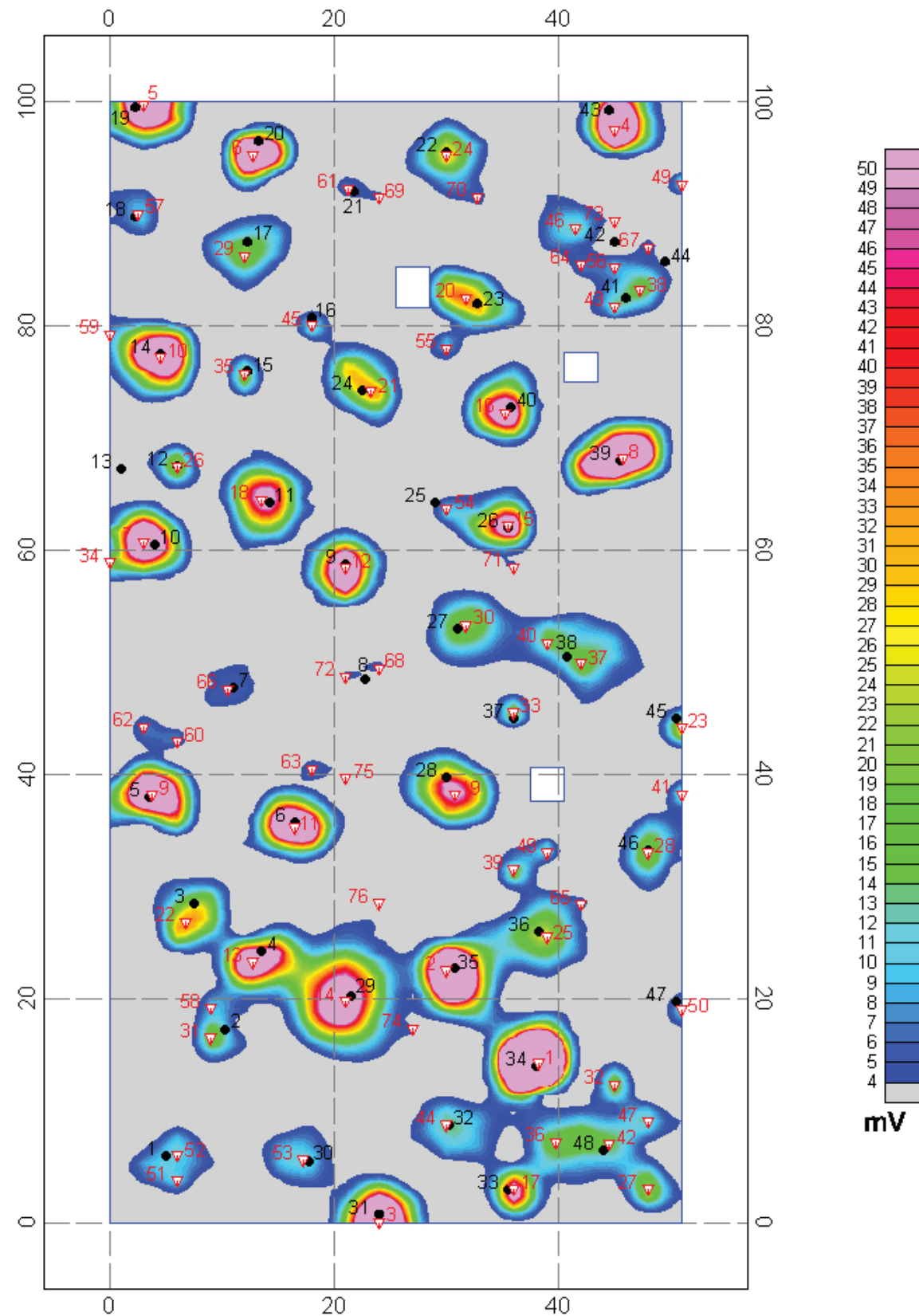
— Line Path



CH2M HILL

EM-61 Bottom Coil
Grids B16 and B17 - QC Line
Blue Beach West
Vieques, Puerto Rico

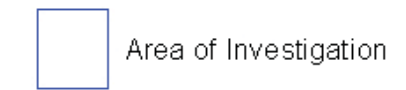
December 16, 2002



Seeded Items Location and Description

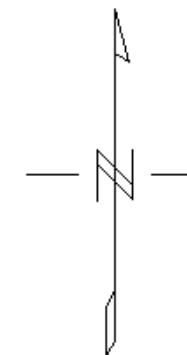
Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction
1	5"/54 Illumination Round	5.00	6.00	48"	Horizontal	NW-SE
2	Mech Time Fuze (projo)	10.25	17.25	4"	N/A	N/A
3	5"/54 Illumination Round	7.50	28.50	36"	45°	Nose Down
4	5" ZUNI Rocket Fin Assembly	13.50	24.25	6"	H	E-W
5	MK 230 Bomb Tail fuze	3.50	38.00	14"	H	N-S
6	MK 230 Bomb Tail fuze	16.50	35.75	16"	H	N-S
7	5"/54 Illumination Round	11.00	47.75	48"	H	NW-SE
8	20 MM HE (UNFUZED)	22.75	48.50	3"	V	N/A
9	MK 230 Bomb Tail fuze	21.00	58.75	14"	V	N/A
10	MK 230 Bomb Tail fuze	4.00	60.50	10"	H	N/A
11	5"/54 Illumination Round	14.25	64.25	25"	45°	Nose Down
12	40 MM CTG (Aluminum)	6.00	67.50	2"	H	N - S
13	20 MM HE (UNFUZED)	1.00	67.25	2"	H	N/A
14	3" Projectile HE (UNFUZED)	4.50	77.50	18"	H	E - W
15	20 MM HE (UNFUZED)	12.25	76.00	3"	H	N/A
16	20 MM HE (SIMULATOR)	18.00	80.75	4"	H	N/A
17	5"/54 Illumination Round	12.25	87.50	30"	V	Nose Down
18	3" Projectile HE (UNFUZED)	2.25	89.75	34"	45°	Nose Down
19	5" ZUNI Rocket Fin Assembly	2.25	99.50	10"	H	E - W
20	3" CTG Case (Aluminum)	13.25	96.50	6"	H	N/A
21	20 MM HE (UNFUZED)	21.75	92.00	2"	H	N/A
22	5"/54 Illumination Round	30.00	95.50	34"	H	NE-SW
23	3" CTG Case (Aluminum)	32.75	82.00	6"	V	N/A
24	3" Projectile HE (UNFUZED)	22.50	74.25	24"	H	E - W
25	20 MM HE (UNFUZED)	29.00	64.25	4"	H	N/A
26	81 MM Tail Boom Assy	35.50	62.00	7"	H	N/A
27	5"/54 Illumination Round	31.00	53.00	38"	H	N - S
28	3" Projectile HE (UNFUZED)	30.00	39.75	16"	H	E - W
29	JATO bottle	21.50	20.25	44"	H	N - S
30	5"/54 Illumination Round	17.75	5.50	42"	H	N - S
31	3" Projectile HE (UNFUZED)	24.00	0.75	5"	H	N - S
32	5"/54 Illumination Round	30.25	8.75	38"	H	E - W
33	MK7 Igniter WP	35.50	3.00	5"	N/A	N/A
34	20 MM Ammo Can Lid	38.00	14.00	2"	H	N - S
35	3" Projectile HE (UNFUZED)	30.75	22.75	5"	H	N - S
36	5"/54 Illumination Round	38.25	26.00	32"	H	N - S
37	20 MM HE (UNFUZED)	36.00	45.00	4"	N/A	N/A
38	2.75" Rocket Motor	40.75	50.50	30"	H	N - S
39	MK 230 Bomb Tail fuze	45.50	68.00	4"	H	N - S
40	5" ZUNI Rocket Fin Assembly	35.75	72.75	14"	H	E-W
41	M344 Bomb Nose Fuze	46.00	82.50	5"	N/A	N/A
42	5"/54 Illumination Round	45.00	87.50	40"	H	NE-SW
43	MK 230 Bomb Tail fuze	44.50	99.25	10"	H	E - W
44	20 MM HE (UNFUZED)	49.50	85.75	3"	V	N/A
45	81 MM Tail Boom Assy	50.50	45.00	8"	45°	Nose Down
46	3" Projectile HE (UNFUZED)	48.00	33.25	26"	V	Nose Down
47	M84 Fuze Time (Nose)	50.50	19.75	4"	N/A	N/A
48	5" HVAR Rocket Motor	44.00	6.50	48"	h	E - W

Legend

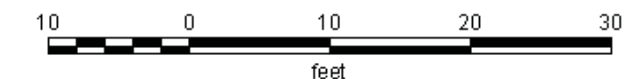


- Selected Target
- Seeded Target
(See table for location and description)

For details on Selected Targets and please see Prove Out Target Comparison Table



Scale 1:180



CH2M HILL

EM-61 Bottom Coil
Post Survey Prove Out
Red and Blue Beach
Vieques, Puerto Rico

December 18, 2002

CH2M HILL
Post Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico
Date of Survey: December 18, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting (ft)	Northing (ft)	Grid Value (mV)
1	PO-1	38.25	14.25	1534.23
2	PO-2	30.00	22.50	329.77
3	PO-3	24.00	0.00	230.81
4	PO-4	45.00	97.50	218.17
5	PO-5	3.00	99.75	161.15
6	PO-6	12.75	95.25	161.09
7	PO-7	3.00	60.75	156.26
8	PO-8	45.75	68.25	142.71
9	PO-9	3.75	38.25	134.20
10	PO-10	4.50	77.25	126.92
11	PO-11	16.50	35.25	119.94
12	PO-12	21.00	58.50	109.73
13	PO-13	12.75	23.25	99.33
14	PO-14	21.00	19.76	82.50
15	PO-15	35.50	62.25	76.72
16	PO-16	35.24	72.28	75.20
17	PO-17	36.00	3.00	63.59
18	PO-18	13.50	64.50	58.04
19	PO-19	30.75	38.25	56.55
20	PO-20	31.75	82.50	36.70
21	PO-21	23.25	74.25	36.30
22	PO-22	6.78	26.80	33.91
23	PO-23	51.00	44.25	32.22
24	PO-24	30.00	95.25	29.16
25	PO-25	39.00	25.50	26.25
26	PO-26	6.00	67.50	24.74
27	PO-27	48.00	3.00	23.24
28	PO-28	48.00	33.00	20.62
29	PO-29	12.00	86.25	20.25
30	PO-30	31.81	53.28	19.85
31	PO-31	9.00	16.50	19.50
32	PO-32	45.00	12.30	19.50
33	PO-33	36.00	45.52	18.75
34	PO-34	0.00	58.93	18.37
35	PO-35	12.00	75.75	18.34
36	PO-36	39.75	7.20	17.25
37	PO-37	42.00	50.00	17.25
38	PO-38	47.25	83.25	16.87
39	PO-39	36.00	31.50	16.87
40	PO-40	39.00	51.75	16.50
41	PO-41	51.00	38.25	14.25
42	PO-42	44.50	7.00	14.25
43	PO-43	45.00	81.75	13.87
44	PO-44	30.00	8.73	13.50

Prepared by: NAEVA Geophysics, Inc.

CH2M HILL
Post Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico
Date of Survey: December 18, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting (ft)	Northing (ft)	Grid Value (mV)
45	PO-45	18.00	80.08	13.50
46	PO-46	41.50	88.75	13.08
47	PO-47	48.00	9.00	12.75
48	PO-48	39.00	33.00	12.55
49	PO-49	51.00	92.62	12.00
50	PO-50	51.00	19.00	11.62
51	PO-51	6.00	3.75	11.62
52	PO-52	6.00	6.00	11.22
53	PO-53	17.26	5.61	11.09
54	PO-54	30.00	63.71	10.50
55	PO-55	30.00	78.00	9.72
56	PO-56	45.00	85.23	9.37
57	PO-57	2.50	90.00	9.37
58	PO-58	9.00	19.14	9.00
59	PO-59	0.00	79.23	7.50
60	PO-60	6.00	42.97	7.50
61	PO-61	21.25	92.25	7.46
62	PO-62	3.00	44.25	6.75
63	PO-63	18.00	40.50	6.71
64	PO-64	42.00	85.50	6.36
65	PO-65	42.00	28.41	6.00
66	PO-66	10.51	47.63	5.69
67	PO-67	48.00	87.00	5.25
68	PO-68	24.00	49.50	5.25
69	PO-69	24.00	91.50	5.20
70	PO-70	32.75	91.54	5.06
71	PO-71	36.00	58.50	4.86
72	PO-72	21.00	48.75	4.86
73	PO-73	45.00	89.39	4.50
74	PO-74	27.00	17.34	4.50
75	PO-75	21.00	39.75	4.11
76	PO-76	24.00	28.50	4.11

CH2M HILL
Post Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico

Target Comparison Table (EM-61)

Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction	NAEVA Target ID	x (ft)	y (ft)	Grid Value (mV)	Offset
1	5"/54 Illumination Round	5.00	6.00	48"	Horizontal	NW-SE	52	6.00	6.00	11.22	1.00
2	Mech Time Fuze (projo)	10.25	17.25	4"	N/A	N/A	31	9.00	16.50	19.50	1.46
3	5"/54 Illumination Round	7.50	28.50	36"	45°	Nose Down	22	6.78	26.80	33.91	1.85
4	5" ZUNI Rocket Fin Assembly	13.50	24.25	6"	H	E-W	13	12.75	23.25	99.33	1.25
5	MK 230 Bomb Tail fuze	3.50	38.00	14"	H	N-S	9	3.75	38.25	134.20	0.35
6	MK 230 Bomb Tail fuze	16.50	35.75	16"	H	N-S	11	16.50	35.25	119.94	0.50
7	5"/54 Illumination Round	11.00	47.75	48"	H	NW-SE	66	10.51	47.63	5.69	0.51
8	20 MM HE (UNFUZED)	22.75	48.50	3"	V	N/A	68	24.00	49.50	5.25	1.60
9	MK 230 Bomb Tail fuze	21.00	58.75	14"	V	N/A	12	21.00	58.50	109.73	0.25
10	MK 230 Bomb Tail fuze	4.00	60.50	10"	H	N/A	7	3.00	60.75	156.26	1.03
11	5"/54 Illumination Round	14.25	64.25	25"	45°	Nose Down	18	13.50	64.50	58.04	0.79
12	40 MM CTG (Aluminum)	6.00	67.50	2"	H	N - S	26	6.00	67.50	24.74	0.00
13	20 MM HE (UNFUZED)	1.00	67.25	2"	H	N/A					
14	3" Projectile HE (UNFUZED)	4.50	77.50	18"	H	E - W	10	4.50	77.25	126.92	0.25
15	20 MM HE (UNFUZED)	12.25	76.00	3"	H	N/A	35	12.00	75.75	18.34	0.35
16	20 MM HE (SIMULATOR)	18.00	80.75	4"	H	N/A	45	18.00	80.08	13.50	0.67
17	5"/54 Illumination Round	12.25	87.50	30"	V	Nose Down	29	12.00	86.25	20.25	1.27
18	3" Projectile HE (UNFUZED)	2.25	89.75	34"	45°	Nose Down	57	2.50	90.00	9.37	0.35
19	5" ZUNI Rocket Fin Assembly	2.25	99.50	10"	H	E - W	5	3.00	99.75	161.15	0.79
20	3" CTG Case (Aluminum)	13.25	96.50	6"	H	N/A	6	12.75	95.25	161.09	1.35
21	20 MM HE (UNFUZED)	21.75	92.00	2"	H	N/A	61	21.25	92.25	7.46	0.56
22	5"/54 Illumination Round	30.00	95.50	34"	H	NE-SW	24	30.00	95.25	29.16	0.25
23	3" CTG Case (Aluminum)	32.75	82.00	6"	V	N/A	20	31.75	82.50	36.70	1.12
24	3" Projectile HE (UNFUZED)	22.50	74.25	24"	H	E - W	21	23.25	74.25	36.30	0.75
25	20 MM HE (UNFUZED)	29.00	64.25	4"	H	N/A	54	30.00	63.71	10.50	1.14
26	81 MM Tail Boom Assy	35.50	62.00	7"	H	N/A	15	35.50	62.25	76.72	0.25
27	5"/54 Illumination Round	31.00	53.00	38"	H	N - S	30	31.81	53.28	19.85	0.85
28	3" Projectile HE (UNFUZED)	30.00	39.75	16"	H	E - W	19	30.75	38.25	56.55	1.68
29	JATO bottle	21.50	20.25	44"	H	N - S	14	21.00	19.76	82.50	0.70
30	5"/54 Illumination Round	17.75	5.50	42"	H	N - S	53	17.26	5.61	11.09	0.50
31	3" Projectile HE (UNFUZED)	24.00	0.75	5"	H	N - S	3	24.00	0.00	230.81	0.75
32	5"/54 Illumination Round	30.25	8.75	38"	H	E - W	44	30.00	8.73	13.50	0.25

Prepared by: NAEVA Geophysics, Inc.

CH2M HILL
Post Survey Prove Out
Red Beach and Blue Beach
Vieques, Puerto Rico

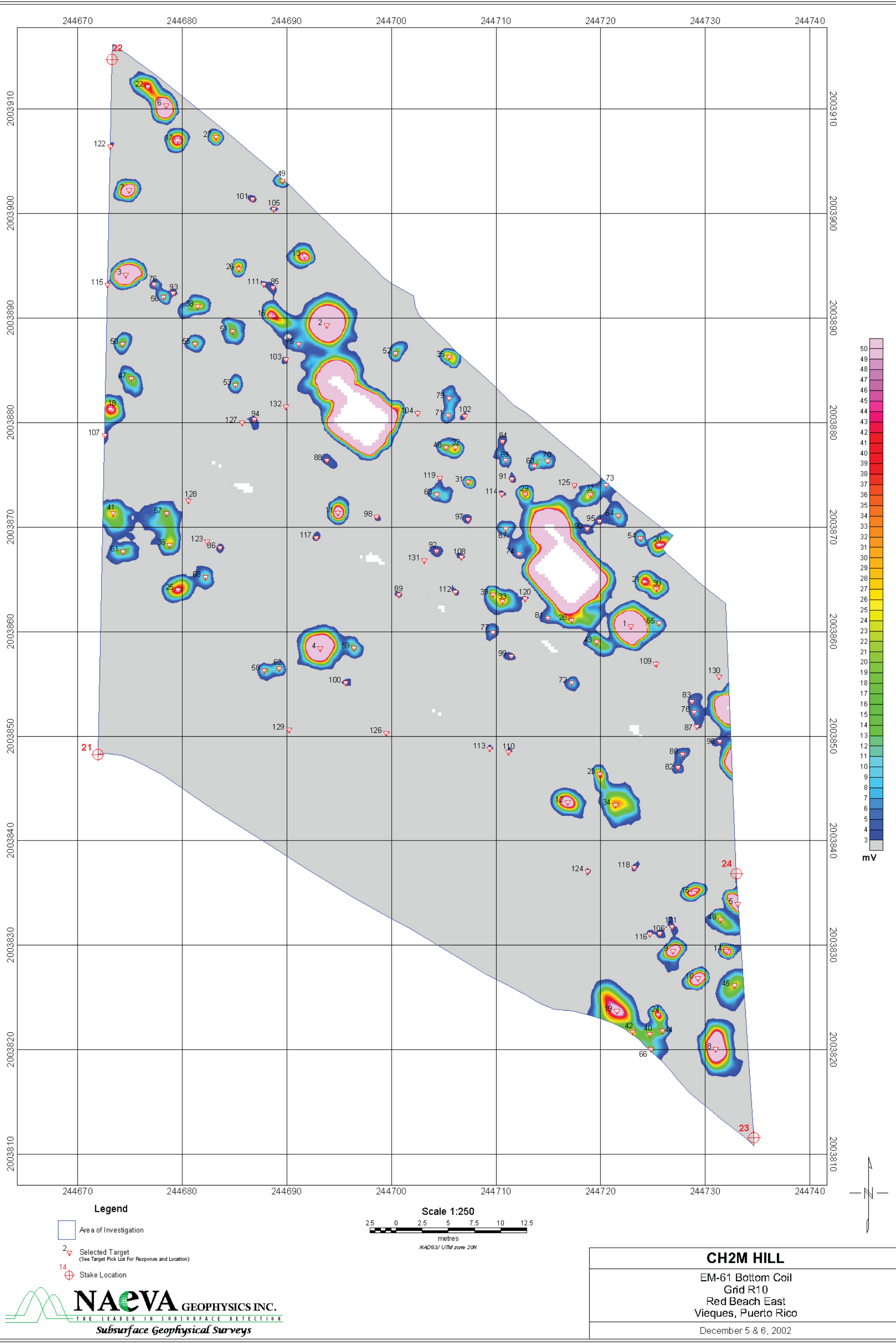
Target Comparison Table (EM-61)

Seeded ID	Nomenclature	X (ft)	Y (ft)	Depth	Orientation	Direction	NAEVA Target ID	x (ft)	y (ft)	Grid Value (mV)	Offset
33	MK7 Igniter WP	35.50	3.00	5"	N/A	N/A	17	36.00	3.00	63.59	0.50
34	20 MM Ammo Can Lid	38.00	14.00	2"	H	N - S	1	38.25	14.25	1534.23	0.35
35	3" Projectile HE (UNFUZED)	30.75	22.75	5"	H	N - S	2	30.00	22.50	329.77	0.79
36	5"/54 Illumination Round	38.25	26.00	32"	H	N - S	25	39.00	25.50	26.25	0.90
37	20 MM HE (UNFUZED)	36.00	45.00	4"	N/A	N/A	33	36.00	45.52	18.75	0.52
38	2.75" Rocket Motor	40.75	50.50	30"	H	N - S	37	42.00	50.00	17.25	1.35
39	MK 230 Bomb Tail fuze	45.50	68.00	4"	H	N - S	8	45.75	68.25	142.71	0.35
40	5" ZUNI Rocket Fin Assembly	35.75	72.75	14"	H	E-W	16	35.24	72.28	75.20	0.70
41	M344 Bomb Nose Fuze	46.00	82.50	5"	N/A	N/A	43	45.00	81.75	13.87	1.25
42	5"/54 Illumination Round	45.00	87.50	40"	H	NE -SW	73	45.00	89.39	4.50	1.89
43	MK 230 Bomb Tail fuze	44.50	99.25	10"	H	E - W	4	45.00	97.50	218.17	1.82
44	20 MM HE (UNFUZED)	49.50	85.75	3"	V	N/A	67	48.00	87.00	5.25	1.95
45	81 MM Tail Boom Assy	50.50	45.00	8"	45°	Nose Down	23	51.00	44.25	32.22	0.90
46	3" Projectile HE (UNFUZED)	48.00	33.25	26"	V	Nose Down	28	48.00	33.00	20.62	0.25
47	M84 Fuze Time (Nose)	50.50	19.75	4"	N/A	N/A	50	51.00	19.00	11.62	0.90
48	5" HVAR Rocket Motor	44.00	6.50	48"	h	E - W	42	44.50	7.00	14.25	0.71

CH2M Hill
Grid R03
Red Beach
Vieques, Puerto Rico
Date of Survey: Decmber 9, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
1	R03-1	244192.4112	2003758.9530	43.81
2	R03-2	244217.4720	2003770.7777	42.19
3	R03-3	244229.1000	2003763.9000	32.21
4	R03-4	244238.3878	2003776.9626	5.50
5	R03-5	244220.7601	2003777.6850	5.44
6	R03-6	244213.8000	2003766.3000	5.20
7	R03-7	244241.2128	2003779.4948	4.37
8	R03-8	244241.2987	2003778.2958	4.15
9	R03-9	244226.1000	2003769.6000	4.06
10	R03-10	244194.7199	2003754.2879	3.76
11	R03-11	244219.8555	2003776.4166	3.50
12	R03-12	244189.8000	2003753.7000	3.35
13	R03-13	244182.9439	2003748.2397	3.25
14	R03-14	244233.3437	2003780.5150	3.25
15	R03-15	244229.4000	2003782.2000	3.25
16	R03-16	244241.0393	2003784.6741	3.05



CH2M Hill
Grid R10
Red Beach
Vieques, Puerto Rico

Date of Survey: December 5 & 6, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
1	R10-1	244722.9000	2003860.5000	6546.26
2	R10-2	244693.8000	2003889.3000	1707.61
3	R10-3	244674.6000	2003894.1000	488.87
4	R10-4	244693.2000	2003858.4000	378.32
5	R10-5	244733.0988	2003833.9206	351.27
6	R10-6	244678.4518	2003910.3128	171.45
7	R10-7	244674.9000	2003902.2000	140.83
8	R10-8	244731.0025	2003820.0750	128.31
9	R10-9	244726.9038	2003829.4463	117.76
10	R10-10	244729.2923	2003826.8201	117.35
11	R10-11	244694.8875	2003871.3569	86.38
12	R10-12	244716.8512	2003843.6790	79.92
13	R10-13	244691.7000	2003895.9000	79.54
14	R10-14	244732.0077	2003829.4422	70.58
15	R10-15	244728.9000	2003835.0000	66.46
16	R10-16	244688.4000	2003890.2000	61.14
17	R10-17	244679.5503	2003907.0007	60.73
18	R10-18	244673.1078	2003881.2386	58.90
19	R10-19	244721.5387	2003823.6954	58.17
20	R10-20	244725.6000	2003868.3000	54.36
21	R10-21	244724.1761	2003864.7658	49.78
22	R10-22	244676.7000	2003912.1000	48.51
23	R10-23	244719.9000	2003846.4000	47.81
24	R10-24	244725.4589	2003823.3646	47.00
25	R10-25	244679.6003	2003864.0108	45.69
26	R10-26	244685.3943	2003894.6748	42.90
27	R10-27	244683.2315	2003907.3069	41.53
28	R10-28	244717.2000	2003861.1000	40.06
29	R10-29	244712.7553	2003873.1644	39.04
30	R10-30	244725.3000	2003864.1000	37.70
31	R10-31	244707.3000	2003874.3000	36.98
32	R10-32	244706.1000	2003877.6000	33.58
33	R10-33	244710.6000	2003862.9000	33.47
34	R10-34	244721.4000	2003843.4000	33.41
35	R10-35	244705.5000	2003886.3000	32.21
36	R10-36	244678.8000	2003868.3000	28.57
37	R10-37	244719.0000	2003873.1000	28.08
38	R10-38	244681.5000	2003891.1000	27.86
39	R10-39	244709.6978	2003863.5495	27.76
40	R10-40	244724.7000	2003821.5000	27.43
41	R10-41	244673.4000	2003871.3000	26.12
42	R10-42	244723.0410	2003821.7060	25.36
43	R10-43	244719.6000	2003859.0000	23.40

Prepared by: NAEVA Geophysics, Inc.

CH2M Hill
Grid R10
Red Beach
Vieques, Puerto Rico

Date of Survey: December 5 & 6, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
44	R10-44	244725.9000	2003821.8000	23.20
45	R10-45	244732.7717	2003826.1290	23.18
46	R10-46	244731.4743	2003832.4595	22.88
47	R10-47	244675.1225	2003884.2375	22.62
48	R10-48	244705.2000	2003877.6000	22.31
49	R10-49	244689.6000	2003903.1000	21.70
50	R10-50	244674.3000	2003887.5000	21.09
51	R10-51	244684.8000	2003888.7000	19.89
52	R10-52	244700.4000	2003886.6000	19.49
53	R10-53	244685.1000	2003883.6000	18.27
54	R10-54	244723.8000	2003868.9000	17.97
55	R10-55	244681.2000	2003887.5000	17.00
56	R10-56	244678.2000	2003892.0000	16.98
57	R10-57	244678.5000	2003871.3000	16.20
58	R10-58	244687.8509	2003856.2756	16.07
59	R10-59	244696.4296	2003858.4163	15.35
60	R10-60	244713.6756	2003875.8364	14.98
61	R10-61	244674.3553	2003867.6599	14.18
62	R10-62	244689.2759	2003856.4705	14.13
63	R10-63	244704.3317	2003873.0866	14.11
64	R10-64	244721.6697	2003871.0964	13.59
65	R10-65	244725.6000	2003860.8000	13.47
66	R10-66	244724.7807	2003820.0474	13.44
67	R10-67	244710.9068	2003869.8247	13.26
68	R10-68	244682.2128	2003865.2355	13.24
69	R10-69	244710.9000	2003876.4000	12.42
70	R10-70	244714.9225	2003876.3095	11.01
71	R10-71	244705.3956	2003880.6776	10.51
72	R10-72	244717.2000	2003855.1000	9.82
73	R10-73	244720.5000	2003874.0000	9.51
74	R10-74	244712.1748	2003867.4473	9.42
75	R10-75	244691.1000	2003887.5000	9.07
76	R10-76	244677.3000	2003893.2000	9.01
77	R10-77	244709.7000	2003859.9000	8.89
78	R10-78	244728.9209	2003852.2995	8.84
79	R10-79	244705.5143	2003882.3197	7.37
80	R10-80	244727.8252	2003848.2949	7.22
81	R10-81	244714.9466	2003861.2826	7.19
82	R10-82	244727.4000	2003847.0000	6.94
83	R10-83	244728.7145	2003853.3224	6.27
84	R10-84	244710.6000	2003878.2000	5.99
85	R10-85	244688.7000	2003892.9000	5.54
86	R10-86	244683.6000	2003868.0000	5.49

Prepared by: NAEVA Geophysics, Inc.

CH2M Hill
Grid R10
Red Beach
Vieques, Puerto Rico

Date of Survey: December 5 & 6, 2002

Target Pick Table (EM-61)

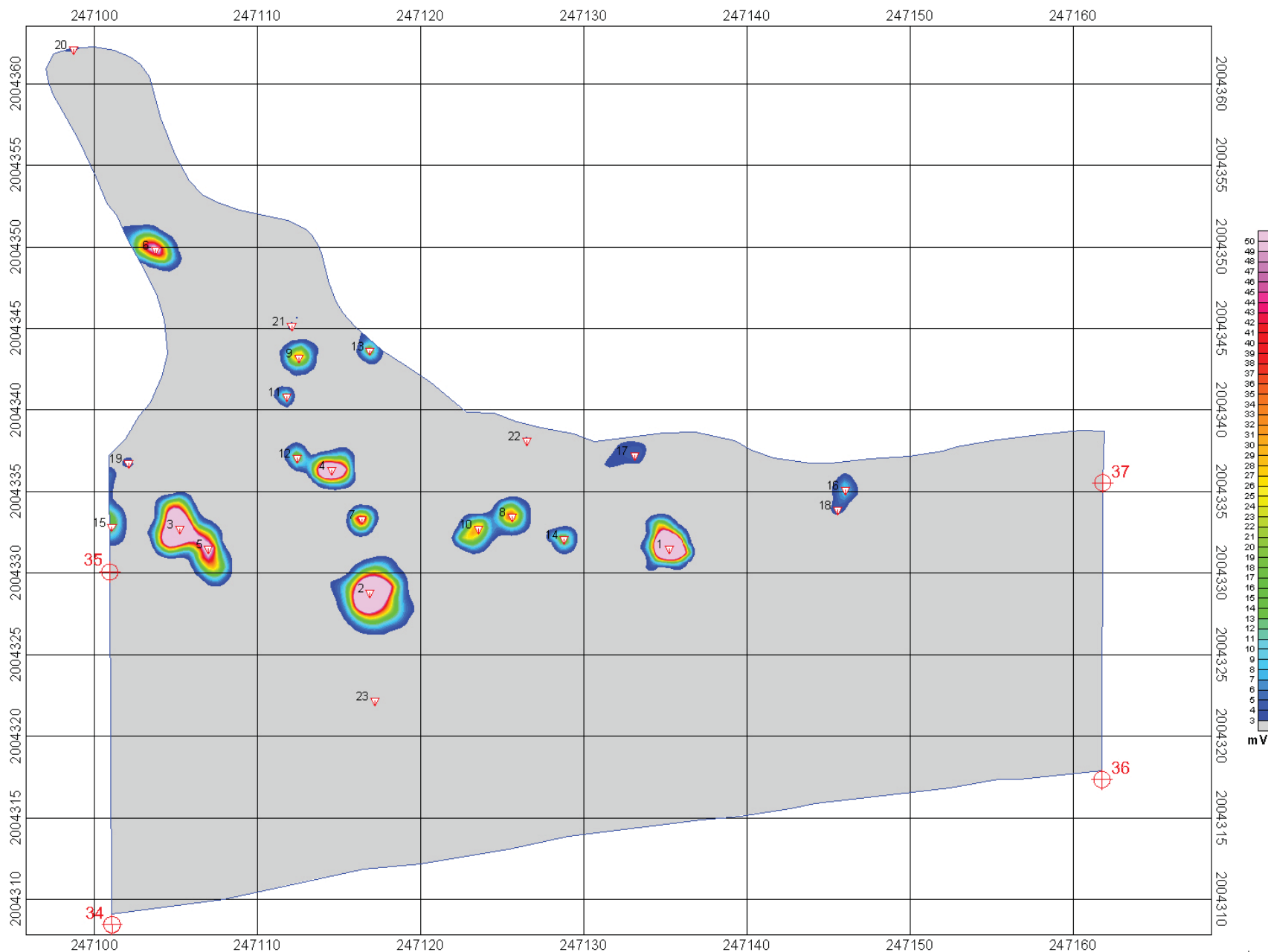
Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
87	R10-87	244729.2000	2003850.9000	5.47
88	R10-88	244693.8000	2003876.4000	5.29
89	R10-89	244700.7000	2003863.5000	5.22
90	R10-90	244718.7000	2003869.8000	5.08
91	R10-91	244711.5000	2003874.6000	5.04
92	R10-92	244704.3000	2003867.7000	4.98
93	R10-93	244679.1303	2003892.3925	4.68
94	R10-94	244686.9000	2003880.3000	4.68
95	R10-95	244719.8710	2003870.5711	4.53
96	R10-96	244731.3388	2003849.5074	4.40
97	R10-97	244707.3000	2003870.7000	4.38
98	R10-98	244698.6000	2003871.0000	4.30
99	R10-99	244711.4376	2003857.6612	4.16
100	R10-100	244695.6000	2003855.1000	4.13
101	R10-101	244686.7303	2003901.3825	4.13
102	R10-102	244707.0000	2003880.6000	4.08
103	R10-103	244689.9000	2003886.0000	4.06
104	R10-104	244702.5000	2003880.9000	4.05
105	R10-105	244688.7490	2003900.4362	3.99
106	R10-106	244725.6359	2003831.1050	3.94
107	R10-107	244672.5734	2003878.7893	3.92
108	R10-108	244706.7000	2003867.1000	3.89
109	R10-109	244725.3000	2003856.9000	3.86
110	R10-110	244711.2000	2003848.5000	3.84
111	R10-111	244687.8000	2003893.2000	3.81
112	R10-112	244706.1000	2003863.8000	3.76
113	R10-113	244709.4000	2003848.8000	3.74
114	R10-114	244710.5535	2003873.1695	3.70
115	R10-115	244672.8700	2003893.1731	3.70
116	R10-116	244724.7000	2003831.1000	3.62
117	R10-117	244692.8090	2003868.9925	3.57
118	R10-118	244723.2205	2003837.4314	3.54
119	R10-119	244704.6266	2003874.6899	3.53
120	R10-120	244712.7553	2003863.1725	3.47
121	R10-121	244726.8153	2003831.7684	3.42
122	R10-122	244673.1000	2003906.4000	3.42
123	R10-123	244682.4000	2003868.6000	3.38
124	R10-124	244718.7679	2003837.0720	3.36
125	R10-125	244717.5000	2003874.0000	3.22
126	R10-126	244699.5000	2003850.3000	3.20
127	R10-127	244685.7000	2003880.0000	3.20
128	R10-128	244680.6000	2003872.5000	3.13
129	R10-129	244690.2000	2003850.6000	3.12

Prepared by: NAEVA Geophysics, Inc.

CH2M Hill
Grid R10
Red Beach
Vieques, Puerto Rico
Date of Survey: December 5 & 6, 2002

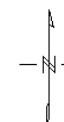
Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
130	R10-130	244731.3000	2003855.7000	3.12
131	R10-131	244703.1415	2003866.7897	3.05
132	R10-132	244689.9000	2003881.5000	3.03



Legend

- Area of Investigation
- 2 ▽ Selected Target
(See Target Pick List For Response and Location)
- 14 ⊕ Stake Location



CH2M HILL

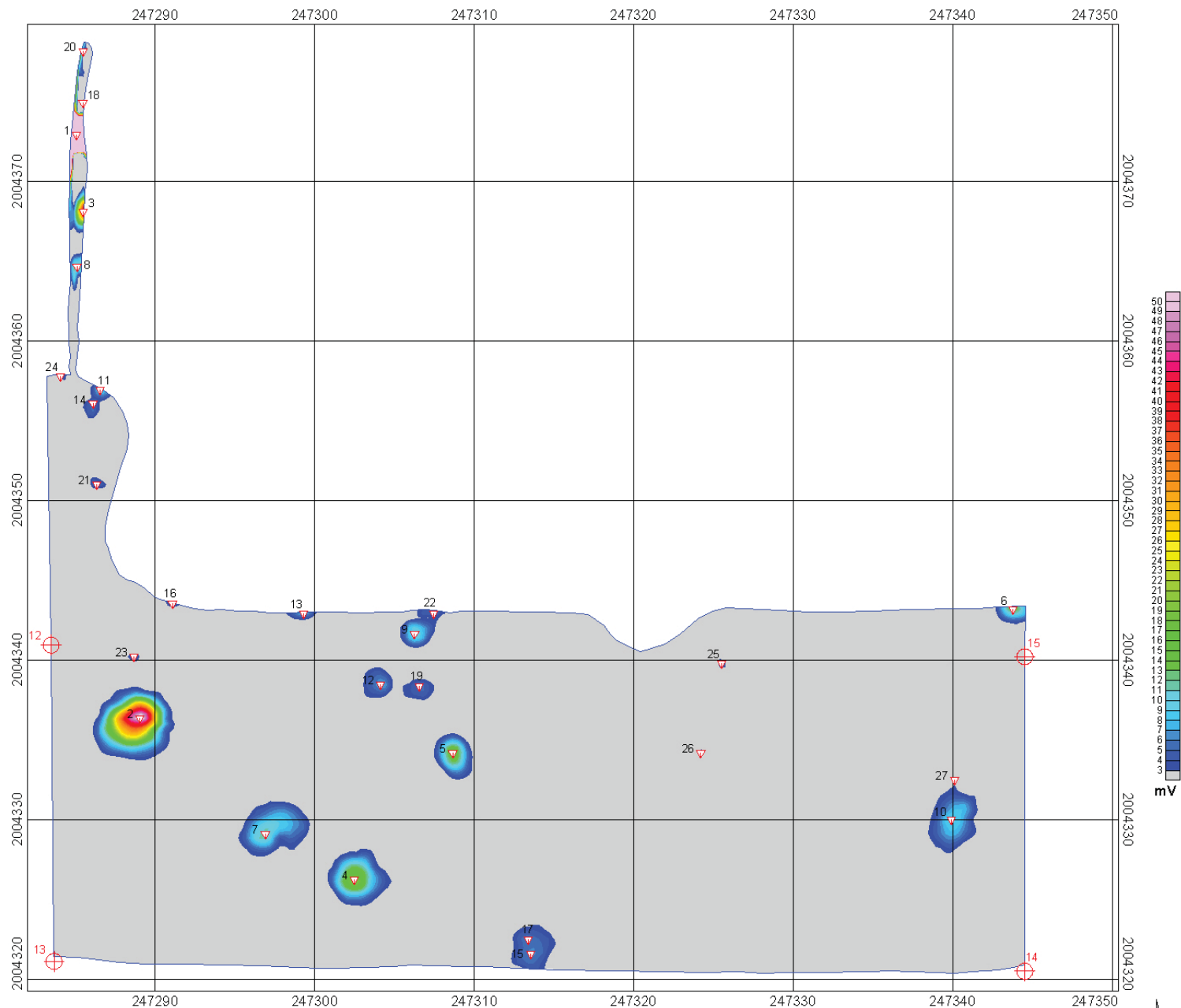
EM-61 Bottom Coil
 Grid B04
 Blue Beach West
 Vieques, Puerto Rico

December 12, 2002

CH2M HILL
Grid B04
Blue Beach
Vieques, Puerto Rico
Date of Survey: December 12, 2002

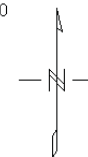
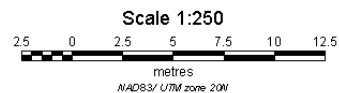
Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
1	B4-1	247135.2289	2004331.5000	387.50
2	B4-2	247116.8946	2004328.8000	198.94
3	B4-3	247105.2121	2004332.7000	183.11
4	B4-4	247114.5469	2004336.3000	115.93
5	B4-5	247107.0008	2004331.5000	60.59
6	B4-6	247103.7588	2004349.8000	56.49
7	B4-7	247116.3915	2004333.3000	45.92
8	B4-8	247125.6146	2004333.4500	35.88
9	B4-9	247112.5346	2004343.2000	30.06
10	B4-10	247123.5464	2004332.7000	29.06
11	B4-11	247111.8080	2004340.8000	18.35
12	B4-12	247112.4229	2004337.0500	17.42
13	B4-13	247116.8946	2004343.6500	16.24
14	B4-14	247128.8007	2004332.1000	15.99
15	B4-15	247101.0757	2004332.8500	15.66
16	B4-16	247146.0170	2004335.1000	8.34
17	B4-17	247133.1048	2004337.2000	4.89
18	B4-18	247145.5698	2004333.9000	4.71
19	B4-19	247102.0819	2004336.7500	3.82
20	B4-20	247098.7281	2004362.1000	3.71
21	B4-21	247112.0875	2004345.1500	3.54
22	B4-22	247126.5089	2004338.1000	3.44
23	B4-23	247117.1752	2004322.2000	3.00



Legend

- Area of Investigation
- 2 ▼ Selected Target
(See Target Pick List For Response and Location)
- 14 ⊕ Stake Location



CH2M HILL

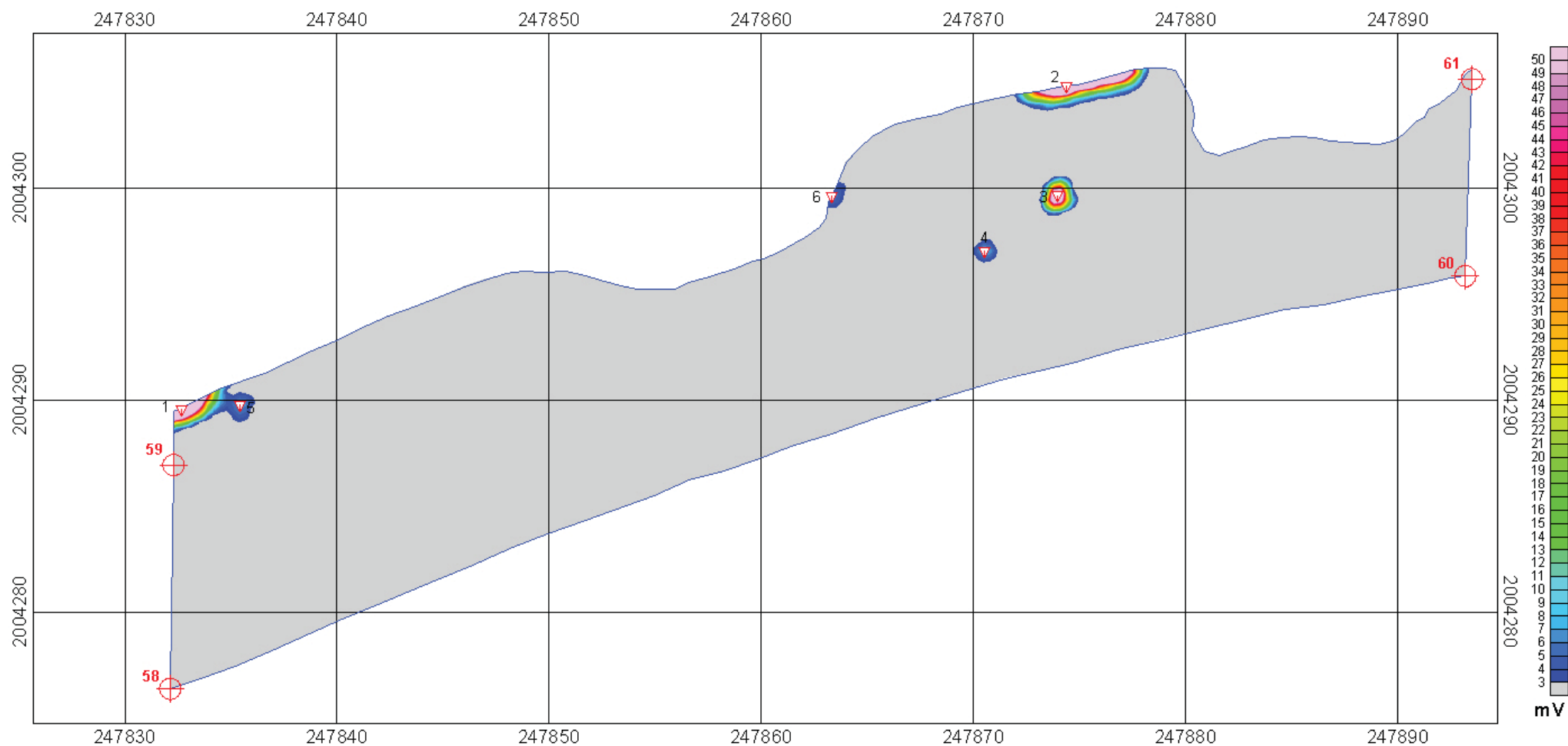
EM-61 Bottom Coil
 Grid B07
 Blue Beach West
 Vieques, Puerto Rico

December 12, 2002

CH2M HILL
Grid B07
Blue Beach
Vieques, Puerto Rico
Date of Survey: December 12, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
1	B7-1	247285.0809	2004372.9376	2383.13
2	B7-2	247289.0481	2004336.3720	50.75
3	B7-3	247285.5000	2004368.1000	42.04
4	B7-4	247302.4986	2004326.2300	18.62
5	B7-5	247308.6461	2004334.1968	15.08
6	B7-6	247343.7557	2004343.1898	14.33
7	B7-7	247296.9000	2004329.1000	11.36
8	B7-8	247285.0937	2004364.6810	10.91
9	B7-9	247306.2605	2004341.6623	9.92
10	B7-10	247339.8931	2004329.9868	9.44
11	B7-11	247286.5537	2004356.9264	8.39
12	B7-12	247304.1395	2004338.4565	7.27
13	B7-13	247299.3000	2004342.9000	7.22
14	B7-14	247286.1000	2004356.1000	6.61
15	B7-15	247313.5527	2004321.5958	6.27
16	B7-16	247291.0741	2004343.5672	6.01
17	B7-17	247313.4000	2004322.5000	5.90
18	B7-18	247285.4653	2004374.9439	5.50
19	B7-19	247306.5690	2004338.3722	5.21
20	B7-20	247285.4745	2004378.1435	4.74
21	B7-21	247286.3581	2004351.0154	4.65
22	B7-22	247307.4560	2004342.9277	4.30
23	B7-23	247288.6873	2004340.2168	4.16
24	B7-24	247284.0509	2004357.7972	3.64
25	B7-25	247325.4949	2004339.7892	3.36
26	B7-26	247324.2000	2004334.2000	3.35
27	B7-27	247340.1065	2004332.4749	3.00



Legend

- Area of Investigation
- 2 ▼ Selected Target
(See Target Pick List For Response and Location)
- 14 ⊕ Stake Location

CH2M HILL

EM-61 Bottom Coil
 Grid B16
 Blue Beach West
 Vieques, Puerto Rico

December 16, 2002

CH2M HILL
Grid B16
Blue Beach
Vieques, Puerto Rico
Date of Survey: December 16, 2002

Target Pick Table (EM-61)

Targets	Target ID	Easting-UTM (m)	Northing-UTM (m)	Grid Value (mV)
1	B16-1	247832.6749	2004289.5508	134.32
2	B16-2	247874.4000	2004304.8000	102.62
3	B16-3	247873.9516	2004299.6492	67.53
4	B16-4	247870.5375	2004297.0440	7.61
5	B16-5	247835.4274	2004289.7493	6.53
6	B16-6	247863.3386	2004299.6244	5.38

EM-61 Data Collection With Linked GPS





Utilizing GPS to Set Corner Stakes



Red Beach GPS Base Station



Red Beach West, View to the West from Grid R4



Red Beach East, View to the West from Grid R10



Blue Beach West, View to the West from Grid B9



Blue Beach West, View to the East from Grid B13



CH2M HILL
GPS Survey Table
Red and Blue Beach
Vieques, Puerto Rico

Dates of Survey: December 2002

Grid Corner Markers and Additional Survey Points

ID	NAD83/UTM zone 20N (metres)		WGS84/World (dd.mm.ss.ss)		Description
	East	North	Longitude	Latitude	
1	246109.97	2004118.07	-65.23.57.240	18.06.39.558	Red Beach GPS Base Station
2	246788.81	2003780.10	-65.23.34.012	18.06.28.858	Blue Beach GPS Base Station
3	244119.70	2003693.98	-65.25.04.715	18.06.24.924	Red Beach West Grid Stake 3
4	244119.54	2003706.69	-65.25.04.725	18.06.25.338	Red Beach West Grid Stake 4
5	244181.18	2003734.43	-65.25.02.642	18.06.26.266	Red Beach West Grid Stake 5
6	244180.36	2003744.83	-65.25.02.675	18.06.26.604	Red Beach West Grid Stake 6
7	244241.94	2003763.71	-65.25.00.590	18.06.27.244	Red Beach West Grid Stake 7
8	244241.39	2003773.20	-65.25.00.613	18.06.27.552	Red Beach West Grid Stake 8
9	244303.28	2003826.69	-65.24.58.533	18.06.29.317	Red Beach West Grid Stake 9
10	244301.64	2003835.68	-65.24.58.592	18.06.29.609	Red Beach West Grid Stake 10
11	244491.12	2003860.31	-65.24.52.161	18.06.30.490	Red Beach East Grid Stake 15
12	244489.76	2003892.11	-65.24.52.222	18.06.31.523	Red Beach East Grid Stake 16
13	244550.69	2003866.04	-65.24.50.139	18.06.30.702	Red Beach East Grid Stake 17
14	244552.00	2003890.29	-65.24.50.105	18.06.31.491	Red Beach East Grid Stake 18
15	244612.03	2003861.38	-65.24.48.052	18.06.30.576	Red Beach East Grid Stake 19
16	244615.19	2003934.98	-65.24.47.977	18.06.32.970	Red Beach East Grid Stake 20
17	244671.85	2003849.41	-65.24.46.013	18.06.30.213	Red Beach East Grid Stake 21
18	244673.20	2003915.88	-65.24.45.996	18.06.32.374	Red Beach East Grid Stake 22
19	244734.54	2003812.76	-65.24.43.865	18.06.29.048	Red Beach East Grid Stake 23
20	244732.88	2003838.00	-65.24.43.932	18.06.29.868	Red Beach East Grid Stake 24
21	246980.68	2004272.06	-65.23.27.705	18.06.44.932	Blue Beach West Grid Stake 30
22	246979.00	2004271.44	-65.23.27.762	18.06.44.911	Blue Beach West Grid Stake 30
23	246978.81	2004289.65	-65.23.27.777	18.06.45.503	Blue Beach West Grid Stake 31
24	247040.20	2004295.63	-65.23.25.692	18.06.45.723	Blue Beach West Grid Stake 32
25	247055.44	2004315.25	-65.23.25.182	18.06.46.368	Blue Beach West Grid Stake 33
26	247101.08	2004308.46	-65.23.23.628	18.06.46.166	Blue Beach West Grid Stake 34
27	247100.94	2004330.07	-65.23.23.642	18.06.46.869	Blue Beach West Grid Stake 35
28	247161.76	2004317.35	-65.23.21.569	18.06.46.481	Blue Beach West Grid Stake 36
29	247161.81	2004335.55	-65.23.21.575	18.06.47.072	Blue Beach West Grid Stake 37
30	247222.88	2004320.92	-65.23.19.492	18.06.46.622	Blue Beach West Grid Stake 38
31	247222.51	2004339.81	-65.23.19.513	18.06.47.237	Blue Beach West Grid Stake 39
32	247283.67	2004321.13	-65.23.17.426	18.06.46.655	Blue Beach West Grid Stake 40
33	247283.48	2004340.95	-65.23.17.441	18.06.47.299	Blue Beach West Grid Stake 41
34	247344.50	2004320.51	-65.23.15.357	18.06.46.661	Blue Beach West Grid Stake 42
35	247344.50	2004340.22	-65.23.15.366	18.06.47.301	Blue Beach West Grid Stake 43
36	247405.85	2004317.06	-65.23.13.270	18.06.46.574	Blue Beach West Grid Stake 44
37	247405.58	2004338.35	-65.23.13.289	18.06.47.266	Blue Beach West Grid Stake 45
38	247466.70	2004305.97	-65.23.11.196	18.06.46.239	Blue Beach West Grid Stake 46
39	247466.35	2004324.58	-65.23.11.217	18.06.46.844	Blue Beach West Grid Stake 47
40	247527.51	2004287.54	-65.23.09.121	18.06.45.666	Blue Beach West Grid Stake 48
41	247527.26	2004300.34	-65.23.09.135	18.06.46.082	Blue Beach West Grid Stake 49
42	247588.52	2004261.08	-65.23.07.035	18.06.44.831	Blue Beach West Grid Stake 50

CH2M HILL
GPS Survey Table
Red and Blue Beach
Vieques, Puerto Rico

Dates of Survey: December 2002

Grid Corner Markers and Additional Survey Points

ID	NAD83/UTM zone 20N (metres)		WGS84/World (dd.mm.ss.ss)		Description
	East	North	Longitude	Latitude	
43	247588.46	2004273.97	-65.23.07.043	18.06.45.250	Blue Beach West Grid Stake 51
44	247649.42	2004234.51	-65.23.04.953	18.06.43.993	Blue Beach West Grid Stake 52
45	247649.34	2004249.13	-65.23.04.962	18.06.44.468	Blue Beach West Grid Stake 53
46	247710.33	2004222.74	-65.23.02.877	18.06.43.636	Blue Beach West Grid Stake 54
47	247710.35	2004239.66	-65.23.02.883	18.06.44.186	Blue Beach West Grid Stake 55
48	247771.17	2004248.88	-65.23.00.820	18.06.44.511	Blue Beach West Grid Stake 56
49	247771.56	2004260.90	-65.23.00.812	18.06.44.902	Blue Beach West Grid Stake 57
50	247832.13	2004276.37	-65.22.58.759	18.06.45.431	Blue Beach West Grid Stake 58
51	247832.29	2004286.93	-65.22.58.758	18.06.45.774	Blue Beach West Grid Stake 59
52	247893.19	2004295.85	-65.22.56.692	18.06.46.090	Blue Beach West Grid Stake 60
53	247893.50	2004305.14	-65.22.56.686	18.06.46.392	Blue Beach West Grid Stake 61
54	247954.38	2004306.73	-65.22.54.616	18.06.46.469	Blue Beach West Grid Stake 62
55	247954.30	2004310.32	-65.22.54.621	18.06.46.586	Blue Beach West Grid Stake 63
56	244626.40	2003880.22	-65.24.47.571	18.06.31.195	Test Line Marker N
57	244636.59	2003877.27	-65.24.47.224	18.06.31.104	Test Line Marker NE
58	244615.82	2003882.79	-65.24.47.932	18.06.31.274	Test Line Marker NW
59	244623.69	2003878.75	-65.24.47.663	18.06.31.146	Test Line Marker S
60	244626.08	2003878.56	-65.24.47.581	18.06.31.141	Test Line Marker S
61	244633.42	2003874.45	-65.24.47.330	18.06.31.011	Test Line Marker SE
62	244636.21	2003875.66	-65.24.47.236	18.06.31.051	Test Line Marker SE
63	244615.46	2003881.20	-65.24.47.944	18.06.31.222	Test Line Marker SW

"*Rite in the Rain*"
ALL-WEATHER WRITING PAPER



LEVEL

All-Weather Notebook
No. 311

CH2M HILL
Red Beach / Blue Beach OF Insect.
Vieques, PR
Field Notes

4 5/8" x 7" - 48 Numbered Pages

12/3/02
AZK

Red Beach / Blue Beach
Vieques, PR

File: 1203 ST

Daily Static Test - EM-61 on wheels

SWMU 4 Prove-out

EM-61 1x0.5m coils on wheels

3' Lines 25' Fills

File: 1203 PO

<u>Line</u>	<u>S/L</u>	<u>E/L</u>	<u>Comments</u>
0	0	100	
↓			
48	0	100	
3R	100	0	Repeat Line
OR	0	100	Repeat Line

12/3/02 cont.

Red Beach Test Line

EM-61 on sled

10 readings/sec

Line @ 60 ft. long & Fid @ 30 ft.

File: 1203 TLS

<u>Line</u>	<u>Dir</u>
0	W
1	E
2	W
3	E
4	W
5	E

Red Beach Test Line

EM-61 on wheels

Line @ 60 ft. long w/ Fid @ 30 ft.

<u>Line</u>	<u>Dir</u>
0	W
1	E
2	W
3	E

12/04/02
AZK, KEL

Red Beach / Blue Beach
Vieques, PR

EM-61 Wheel Mode w/ GPS
10 readings/sec GPS = 1 Hz

File: 1204 STA Daily Static Test

File: 1204 TL Test - Twice in each dir.
line

File: R6

File: R6R Report Lines

File: R6QC QC Lines w/radio

File: R7

File: R7R Report Lines

File: R7QC QC Lines w/radio at center

12/04/02 cont.

File: R8

File: R8R Report Lines

File: R8QC QC Lines w/radio at center

File: R8A Grid RA cont.

File: 1204 STP Afternoon Static Test

12/5/02
AZK/KEL

Rail Bench/Blue Beach
Vicques

<u>Stake</u>	<u>Long</u>	<u>Lat</u>
15A	-65.4144894	18.1084696
16	-65.4145062	18.1087566
17A	-65.4139276	18.1085284
18	-65.4139182	18.1087476
19A	-65.4133478	18.1084936
20A	-65.4133270	18.1091586

EM-61 wheel Mode w/ GPS
10 readings/sec GPS: 1 Hz

File: 1205 STA Morning Static Test

File: R9

File: R9A Grid R9 cont.

File: R9R Repeat Lines

File: R9QL QL Lines w/radio @ center

12/06/02 cont.

File: R10

File: R10A Grid R10 cont.

File: R10R Repeat Lines

File: R10QL QL Lines w/radio @ center

File: R11

File: 1205 STA Afternoon Static Test

12/06/02
AZK/REL

Red Beach/Blue Beach
Vieques, PR

File: 1206 STA

File: R11A Grid R11 cont

File: R11R Repeat Lines

File: R11QL QC Lines w/radio @ Center

File: R11R Repeat Lines

File: R11QL QC Lines w/radio @ Center

File: R1 Border

File: R2

File: R2R Repeat Lines

File: R2QL QC Lines w/radio @ Center

File: R2 Border

File: R11B Grid R11 Cont.

File: R11 Border

File: R10 Border Northern Border

File: 1206 STP

12/09/02
AZK/REL

Red Beach/Blue Beach
Vieques, PR

Blue Beach Base Point

-65.3927816

18.1080194

File: 1209 STA

File: R3

File: R3R Repeat Lines

File: R3QL QC Lines w/radio @ Center

File: R3 Border

File: R4-R5

File: R4-R5A Grids R4/R5 cont.

File: R4-R5R Repeat Lines

File: R4-R5QL QC Lines w/radio @ Center

File: R4-R5 Border

File: 1209 STP

12/11/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

Red Beach Base Point:
Lat. 18.063955817
Long. -65.235723994

Blue Beach in D, M, S:
-65.23340116
18.06288576

EM-61 Wheel Mode w/ GPS
10 readings/sec GPS: 1 Hz

File: 1211 STA

File: B1-B2

File: B1-B2A Grids B1 & B2 cont.

File: B1-B2 border

File: B1-B2R Repeat Lines

File: B1-B2QC QC Lines w/ radio @ center

File: 1211 STP

12/12/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

EM-61 Wheel Mode w/ GPS
10 readings/sec GPS: 1 Hz

File: 1212 STA

File: B3-B4

File: B3-B4 border

File: B3-B4R Repeat Lines

File: B3-B4QC QC Lines w/ radio @ center

File: B5

File: B5A Grid B5 cont.

File: B5B Grid B5 cont.

File: B5R Repeat Lines

File: B5 border

12/12/02 cont.

File: B5QC QC Lines w/radio @ center

File: B6-B7

File: B6-B7 border

File: B6-B7R Repeat Lines

File: B6-B7QC QC Lines w/radio @ center

File: B8

File: 1212STP

12/13/02
AZK/KEL

Red Bench/Blue Bench
Vieques, PR

EM-61 Wheel Mode w/GPS
10 readings/sec GPS = 1Hz

File: 1213 STA

File: B8 border

File: B8R Repeat Lines

File: B8QC QC Lines w/radio @ center

File: B9-B10

File: B9-B10 border

File: B9-B10R Repeat Lines

File: B9-B10QC QC Lines w/radio @ center

12/13/02 (cont.)

File: B11-B12

File: B11-B12 border

File: B11-B12 R Repeat Lines

File: B11-B12 QC QC Lines w/radio @ center

File: 1213 STP

12/14/02

AZK/KEL

Red Beach/Blue Beach
Vieques, PR

EM-61 Wheel Mxla w/GPS
10 readings/sec GPS: 1 Hz

File: 1214 STA

File: B13

File: B13 border

File: B13 R Repeat Lines

File: B13 QC QC Lines w/radio @ center

File: B14-B15

File: B14-B15 border

File: B14-B15 R Repeat Lines

File: B14-B15 QC QC Lines w/radio @ center

File: 1214 STP

12/16/02
AZK/KEL

Reel Beach/Blue Beach
Vieques, PR

EM-61 Wheel Mode w/GPS
10 readings/sec GPS: 1 Hz

File: 1216STA

File: B16-B17

File: B16-B17 border

File: B16-B17 R Repet Lines

File: B16-B17 QC QC Lines w/radio @ center

File: B18

File: B18 border

File: B18 QC QC Lines w/radio @ center

File: 1216STD

12/18/02
AZK/KEL

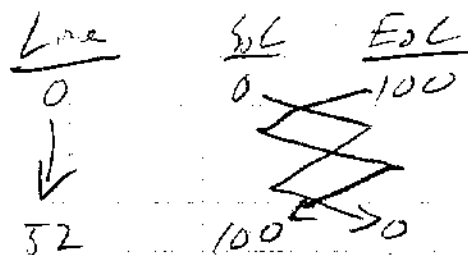
Reel Beach/Blue Beach
Vieques, PR

EM-61 Wheel Mode
Line Spacing: 3' Fid Spacing: 25'

System assembled for GPS Data
collection mode - with data logged
to polycorder

File: 1218ST

File: 1218 PO (SWMT Prove-out)



"*Rite in the Rain*"
ALL-WEATHER WRITING PAPER



LEVEL

All-Weather Notebook
No. 311

CH2M HILL
Red Beach / Blue Beach OE Invest.
Vieques, PR
Daily Log

4 5/8" x 7" - 48 Numbered Pages

12/2/02
AZK / KEL

Red Beach / Blue Beach
Vieques, PR

0630 - 0730 Site Visit & Safety Brief
0730 - 1100 Locate Equip. Boxes
1100 - 1130 Lunch
1130 - 1230 Visit Blue Beach & Secure Storage
1230 - 1600 Logistics
1600 - 1700 Picking Equip. at Ferry

12/3/02
AZK / KEL

Red Beach / Blue Beach
Vieques, PR

0630 - 0645 Safety Briefing
0645 - 0800 Unpack & Assemble Equip.
0800 - 1100 KEL - Establish GPS Base Control.
0800 - 0830 AZK Drive to SWMU 4
0830 - 0930 AZK - Clear brush at SWMU 4 - P.O.
0930 - 1030 AZK - Collect Data at SWMU 4 - P.O.
1030 - 1100 AZK - Return to Red Beach
1100 - 1130 Lunch
1130 - 500 KEL - Cont. establish GPS Base Control
1130 - 1300 AZK - Shed Set-up & Test Measurements
1300 - 1430 AZK - Process Proxont data
1430 - 1530 AZK - Collect Data at Test Line
1530 - 1630 AZK - Process Test Line Data
1630 - 1700 Pack Equip.

12/4/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0630-0645	Load Equipment
0645-0700	Safety Briefing
0700-0745	Set up GPS Base Station
0745-0840	Set up Field Equip & Grid R6
0840-0940	Collect Data - Grid R6
0940-1000	Set up Grid R7
1000-1115	Collect Data Grid R7
1115-1145	Lunch
1145-1300	Examine Morning Data
1300-1330	Set up Grid R8
1330-1600	Collect Data Grid R8
1600-1630	Pack Equipment

12/5/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0630-0700	Set up GPS Base Station
0700-0730	Safety Briefing
0730-0815	Set up Field Equip
0815-0930	Data Collection Grid R9
0930-0950	Move Riggs - Comm w/ office
0950-1130	Finish Data Collection Grid R9
1130-1200	Lunch
1200-1230	Set up Grid R10
1230-1500	Collect Data - Grid R10
1500-1545	Set up Grid R11 and collect
	Test Line GPS CornerRadius
1545-1630	Begin Data Collection - Grid R11
1630-1700	Pack Equipment

12/6/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0630-0700	Set-up GPS Base Station
0700-0715	Safety Briefing
0715-0745	Set-up Field Equipment
0745-0845	Data Collection at R11
0845-0945	Set-up Stakes at Red Beach 443
	Set-up R1 & Field Equip.
0945-1115	Data Collection at R1
1115-1145	Lunch
1145-1215	Communicate w/office
1215-1245	Set-up R2 and Field Equip
1245-1445	Data Collection at R2
1445-1515	Set-up Field Equip at R11
1515-1600	Finish Data Collection at R11
1600-1630	Pack Equipment

12/9/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0630-0700	Set-up GPS Base Station
0700-0715	Safety Briefing
0715-0745	Set-up Field Equip.
0745-0900	Data Collection Grid R3
0900-0930	Set-up Grids R4 & R5
0930-1000	Begin Data Collection R4/R5
1000-1115	Establish Base Camp at Blue Beach
1115-1145	Lunch
1145-1215	Set-up Field Equip
1215-1330	Data Collection Grids R4/R5
1330-1400	Prep for reuc.
1400-1600	Reuc Grids R6 & R7
1600-1630	Pack Equip.

12/10/02
AZK/KEL

0630-0645
0645-0700
0700-0715
0715-0830
0830-1115
1115-1145
1145-1215
1215-1315
1315-1600
1600-1630

Reel Beach / Blue Beach
Vieques, PR

Set-up GPS Base Station
Safety Briefing
Set-up Field Equip.
Reac. Grid R8
Reac. Grid R9
Lunch
Set-up Field Equip.
Finish Reac. Grid R9
Reac. Grid R10
Debrief & Pack Equip.

12/11/02
AZK/KEL

0630-0645
0645-0700
0700-0715
0715-0915
0915-1015
1015-1100
1100-1145
1145-1245
1245-1315
1315-1530
1530-1615
1615-1645

Reel Beach / Blue Beach
Vieques, PR

Set-up GPS Base Station
Safety Briefing
Set-up Field Equip.
Reac. Grid R11
Move GPS Base Station
Set-up Field Equip.
Lunch
Set stakes at Blue Beach
Set-up Field Equip.
Data Collection Grids B1 & B2
Set stakes at Blue Beach
Pack Equip.

12/12/02
AZK/KEL

0630-0645
0645-0715
0715-0745
0745-1000
1000-1100
1100-1145
1145-1245
1245-1500
1500-1615
1615-1645

Red Beach/Blue Beach
Vieques, PR

Safety Briefing
Set-up GPS Base Station
Set-up Field Equip.
Data Collection Grids B3, B4
Data Collection Grid B5
Lunch
Finish Data Collection Grid B5
Data Collection Grids B6, B7
Data Collection Grid B8
Pack Equip & Debrief

12/13/02
AZK/KEL

0630-0645
0645-0715
0715-0745
0745-0900
0900-0930
0930-1115
1115-1145
1115-1300
1300-1600
1600-1630

Red Beach/Blue Beach
Vieques, PR

Safety Briefing
Set-up GPS Base Station
Set-up Field Equipment
Reacquisition Grids B1, B2
Finish Data Collection Grid B8
Data Collection Grids B9, B10
Lunch
Finish Data Collection B9, B10
Data Collection Grids B11, B12
Pack Equip & Debrief

12/14/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0800-0815

Safety Briefing

0815-0845

Set-up GPS Base Station

0845-0915

Set-up Field Equip.

0915-1100

Data Collection Grid B13

1100-1130

Lunch

1130-1400

Data Collection Grids B14, B15

1400-1430

Pack Equip. & Debrief

12/16/02
AZK/KEL

Red Beach/Blue Beach
Vieques, PR

0630-0645

Safety Briefing

0645-0715

Set-up GPS Base Station

0715-0745

Set-up Field Equip.

0745-1100

Reacquisition Grids B3, B4,
B6, B7

1100-1130

Lunch

1130-1245

Data Collection Grids B16, B17

1245-1345

Data Collection Grid B18

1345-1445

Move GPS Base Station

1445-1600

Begin Reacquisition of

Red Beach West (slowed
due to heavy rain)

1600-1630

Pack Equip. & Debrief

12/17/02
AZK/KEL

Red Bank/Blue Bank
Vieques, PR

0630-0645
0645-0715
0715-0745
0745-1030

Safety Briefing
Set-up GPS Base Station
Set-up Field Equip.
Reorganization Grids R1, R2,
R3, R4

1030-1100
1100-1130
1130-1600

Move GPS Base Station
Lunch
Reorganization Grids B5,
B8, B9, B10, B11, B12, B13,
B14, B15, B16, B17

1600-1630

Pack Equip. & Debrief

12/18/02
AZK/KEL

Red Bank/Blue Bank
Vieques, PR

0630-0645
0645-0715
0715-0745
0745-0830
0830-0900
0900-1100
1100-1130
1130-1600

Safety Briefing
Set-up GPS Base Station
Set-up Field Equip.
Reorganization Grid B18
Disassemble GPS Base Station
Data Collection SWMU4 Plan-out
Lunch
Pack Equipment

APPENDIX D

**Addendum to Report for Red and Blue Beach
Investigation**

Addendum to Report for Red and Blue Beach Investigation

PREPARED FOR: Chris Penny/LANTDIV, EPA, EQB, and DOI

PREPARED BY: CH2M HILL

DATE: May 21, 2003

Introduction

On April 25, 2002, a conference call was held by representatives of the U.S. Navy (the Navy), and the U.S. Environmental Protection Agency (EPA) to discuss additional efforts that would provide data on the anomalies identified below the first foot of the existing beach surface within the areas previously surveyed during the initial MEC characterization investigation at Red and Blue Beaches in Vieques, Puerto Rico. The results of the initial investigation are included in the report entitled, "The Final Draft, Preliminary Munitions and Explosives of Concern (MEC) Investigation Report for Red and Blue Beaches, Vieques Naval Training Range Vieques Island, Puerto Rico" (U.S. Naval Facilities Engineering Command, April 2003). The report concluded that none of the 767 metallic anomalies that were reacquired to a depth of one foot at the beaches posed an unacceptable explosive safety hazard. A total of 23 of the metallic anomalies were found to be munitions-related items including primarily small arms expended blank cartridges and parts of expended smoke grenades. The locations of the items are shown in the Figures included as Attachment A. The investigation also identified 239 metallic anomalies below a depth of one foot that were not recovered. The discussions on the April 25th conference call were primarily focused on two issues:

- Developing and agreeing upon an effective quality assurance sampling effort that would provide a higher level of comfort in understanding the characterization of anomalies detected in the subsurface between the depths of one foot below surface grade and four feet below surface grade.
- Conducting a visual underwater survey along Red and Blue Beach to a depth between four and five feet below water surface.

Based on these discussions, the agencies agreed that an unbiased statistical based random sampling plan to acquire and identify anomalies detected below one foot and no greater than four foot would serve as a reasonable means to provide additional information about the representation of the anomalies detected below one foot and to a depth of four feet below surface. It was agreed upon that a random selection constituting 30% of the 239 metallic anomalies previously detected below one foot would be reacquired for identification and verification by the agencies (EPA, Navy, EQB, and DOI) involved in this additional effort and for further evaluation of explosive safety and hazard risks if

warranted. The anomalies selected for removal were to be randomly selected. In addition, the agencies agreed that a visual underwater survey by qualified EOD personnel would be conducted to a depth between four and five below water surface to determine if any exposed metallic materials were present at the sea bottom along Red and Blue beaches.

On April 27-29, 2003, the Navy and CH2M HILL performed a field investigation to supplement the investigation described in the work plan entitled, "Final Initial Ordnance and Site Assessment Work Plan For Red Beach and Blue Beach" (CH2M HILL, November, 2002). The investigations were field verified by the agencies (EPA, EQB, and DOI). The additional field investigation was based on the discussions held on April 25, 2003 between the Navy and EPA. The purpose of this technical memorandum is to document the scope of the work completed and briefly describe the results of the additional field investigation. Unless otherwise documented in this memorandum, the field investigation procedures were completed in accordance with the work plan.

Scope of Work

For this additional investigation, a total of 30% of the geophysical anomalies that were mapped at Red Beach and Blue Beach during the initial investigation in November and December 2002 that were each described as "no find anomaly continues below 12 inches" were investigated to a maximum depth of 4 feet. Based on the total of 239 anomalies that met this description, a total of 72 anomalies were reacquired and investigated during April 27-29, 2003. The 72 anomalies were selected using a random number generator.

A Global Positioning System (GPS) base station was set up at Red Beach and the 72 locations were reacquired and mapped in the field with pin flags. The exact position of the anomaly was established using a Minex all metals detector. The locations were excavated until the source of the anomaly was found, or until a maximum depth of 4 feet was encountered. The information recorded from the field investigation included: grid number, anomaly number, horizontal GPS coordinates (easting and northing), peak anomaly reading, date found, and a description of the metallic items recovered. A summary of this information is provided in Attachment B.

In addition to the reacquisition of the 72 anomalies below a depth of 12 inches, a visual underwater survey was conducted by the Navy EOD Team along the length of Red Beach and Blue Beaches to a water depth of five feet. Four Navy divers spaced at arms-length snorkeled along the entire length of the two beaches to observe if there are any exposed metallic items that may be indicative of munitions and explosives of concern. The survey also included walking along the shoreline to observe if there were any metallic material within the surf zone. Any observed metallic items observed from the survey were to be documented.

Investigation Results

The results of the additional investigation at Blue and Red beaches confirmed the results of the archive records search and the initial Blue Beach/Red Beach field investigation that only blank munitions were used during amphibious training exercises at the beaches. Photographs of the field investigation are included as Attachment C.

The additional field investigation results revealed that 74 metallic materials were recovered from the investigation at a depth of 1 to 4 feet. However, none of the 74 items recovered from this additional investigation and none of the 767 items recovered from the initial investigation were live ordnance items or posed an unacceptable explosive safety hazard. A listing of the metallic items recovered from the additional investigation is included as Attachment B. The items included mostly scrap metal items including: fence posts, wire, metal pipes, and metal rods. Only one of the metallic items recovered, a M12 practice anti-tank mine, was munitions related. However, the practice mine was unfuzed, corroded and did not contain any explosives. The location of the practice mine is shown in Attachment A, Figure 3-5.

One of the items recovered from the investigation was a small glass vial containing a white substance. The vial was sent to PEL Laboratories, Inc., for the chemical analysis of its contents. Due to the small volume of material contained in the vial (less than 2 milliliters) the analysis was limited to EPA analytical methods 8260 and 8270, which included a list of over 120 constituents as well as library search of volatile and semi-volatile organic compounds. The analyses revealed that the following constituents were detected: hexane; cyclotetrasiloxane, octamethyl-; benzeneethanamine, N-(pentfluorophenyl); acetic acid, 2-ethylhexyl ester; and 2-butanamine. The analytical results are shown in Attachment C. Based on the small volume of sample analyzed (less than 1.0 gram) the concentrations detected may not be accurate.

The results of the underwater survey revealed that there were no metallic items visible at the sea-bottom for the entire length of Blue Beach and Red Beach, from the shoreline to a depth of four- five feet.

Based on the results of the investigation representatives from the Navy, EPA, EQB, and DOI concluded that Blue Beach and Red Beach could be opened to the public for recreational use.

Letter From EPA dated April 30, 2003

On April 30, 2003, a letter (Attachment D) was sent from Mr. Walter Mugdan, Director of the Division of Environmental Planning and Protection to Mr. Sam Hamilton, Regional Director of DOI which states that based on the results of the additional MEC investigation, "EPA concurs with the Navy's and DOI's recommendations that Blue and Red beaches "can be open for recreational usage." However, EPA also stated that "access restrictions should be maintained for the land areas behind the beaches, pending implementation of additional MEC investigations of those areas".

Meeting on May 1, 2003

On May 1, 2003, a meeting was held in Washington D.C. with representatives from the Navy, EPA, EQB, DOI (the agencies) and CH2M HILL to discuss the findings from the additional investigations completed at Red and Blue Beaches. An attendance list from the meeting is included as Attachment E.

The representatives from each of the agencies re-confirmed the conclusions from the field representative from each of the agencies that Red and Blue Beaches are considered to be reasonably safe from any explosive safety hazard and that no evidence suggests that the beaches should not be re-opened for recreational use.

The EQB, DOI, and Navy concluded that the “land areas behind the beaches” referenced in the EPA letter dated 4/30/03 refers to the man-made berms behind Red Beach. At this location, expended small arms blank cartridges were identified at the surface during a site visit. The agencies agreed that due to the low explosive safety hazard associated with these MEC items, and the relatively thick vegetative cover of the berms, the installation of signs in front of the berms for visitors to stay away from the berms would be sufficient to limit access to the berms. In addition, it was agreed that the berms would be included in the prioritization of future investigations that will be developed based on the conclusions from the Preliminary Range Assessment Report for Vieques Naval Training Range

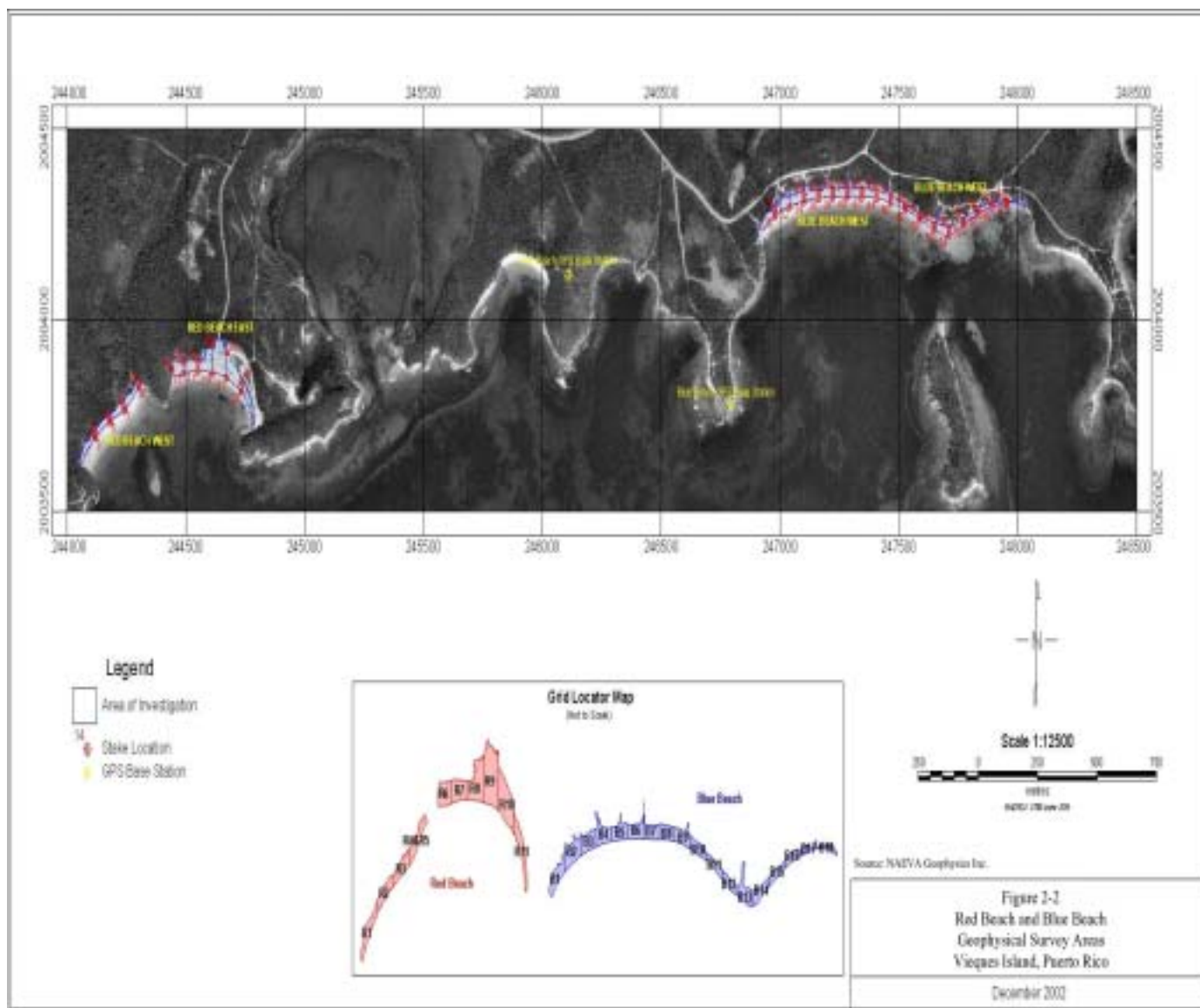
The EQB, DOI, and Navy agreed that the grassy areas between Red Beach and the berm to the north would not require additional investigations due to a visual inspection of this area did not identify any MEC-related items, 2) no intrusive activities are anticipated for this area and 3) based on the historical use of the area, it is anticipated that the same type of metallic materials would be encountered as encountered at the beach.

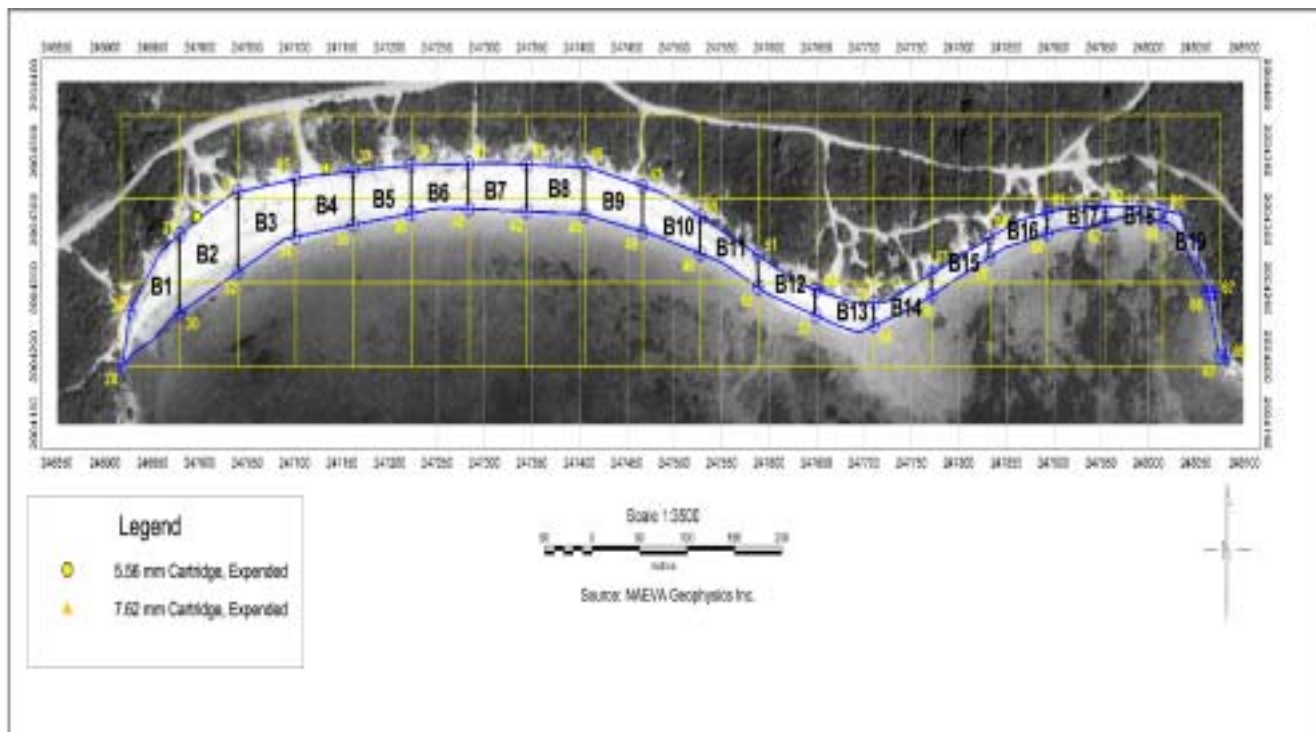
Summary

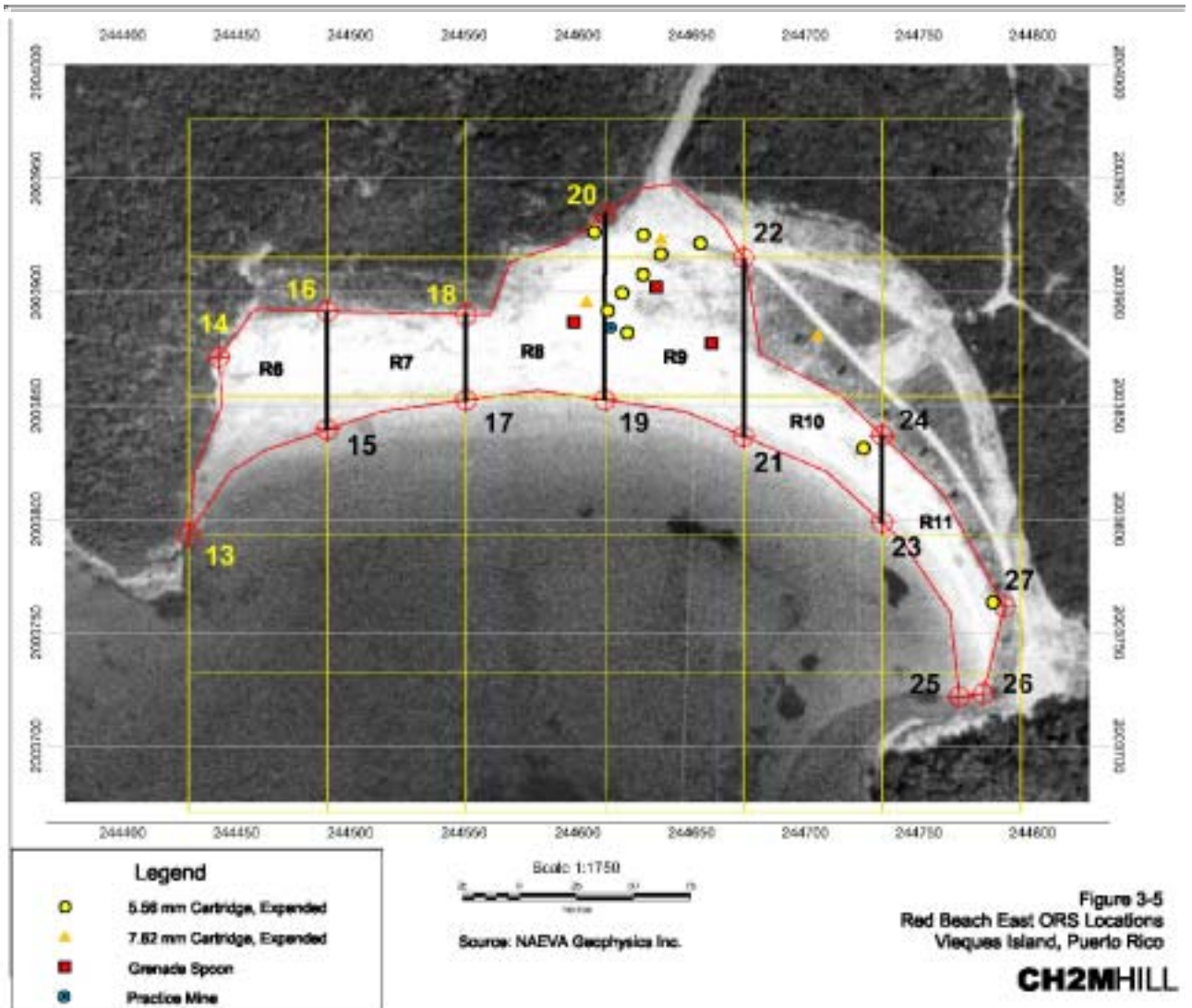
The results of the additional investigation completed at Blue Beach and Red Beach during April 27-29,2003 recovered only one munitions-related item from 74 metallic items that were identified from a depth of 1-4 feet. The munitions-related item recovered, a practice mine, was unfuzed, corroded, did not contain explosives and, therefore, did not pose an unacceptable explosive safety hazard. Based on this information and the results of the initial investigation at Blue Beach and Red Beach, the Navy, EPA, DOI and EQB concur that the beaches can be open for recreation use by the public.

Attachment A

Report Figures







Attachment B

Red Beach/Blue Beach Additional Investigation

Attachment B

Red Beach/Blue Beach Additional Investigation

Anomaly ID #	Easting	Northing	Item	Depth	Remarks
R11-53	244758.900	2003799.900	Fish Trap Cage	24"	
R11-19	244737.664	2003821.952	8" dia pipe	36"	Left in place
R11-8	244774.500	2003742.300	Target deeper than 4'	48"+	Abandoned dig flooded with water
R11-53	244758.900	2003799.900	Metal Scrap	36"	
R11-65	244761.300	2003782.500	Target deeper than 4'	48"+	Abandoned dig flooded with water
R11-48	244766.941	2003777.959	Metal anchor point	30"	Left in place
R11-46	244772.400	2003774.100	Metal Screw anchor	24"	Left in place
R11-46	244772.400	2003774.100	Rock bottom	24"	Abandon dig
R11-86	244776.900	2003760.300	48" pipe	40"	Abandon dig Rock bottom
R11-78	244778.100	2003756.100	Rock bottom	36"	Abandon dig
R11-40	244781.457	2003761.420	Scrap metal	36"	Abandon dig Rock bottom
R11-38	244781.737	2003737.850	Scrap metals	24"	Abandon dig Rock bottom
R10-112	244706.100	2003863.800	Metal scrap	14"	Trash
R10-17	244679.550	2003907.001	3" bolt	16"	
R10-131	244703.142	2003866.790	Metal scrap	18"	Trash
R10-11	244694.887	2003871.357	Fence Post	24"	Left in place
R10-4	244693.200	2003858.400	20" x 30" metal hatch	24"	Left in place
R10-100	244695.600	2003855.100	8" and 12" metal rods	18"	
R10-38	244681.500	2003891.100	20" Fence post	24"	
R10-68	244682.213	2003865.235	1"x 8"x 20" steel plate	24"	
R10-57	244678.500	2003871.300	20" metal spool	36"	Communication wire spool Left in place
R10-18	244673.108	2003881.239	55 gallon drum	30"	Sand filled, left in place
R10-122	244673.100	2003906.400	Metal Scrap	16"	Nails, junk
R10-104	244702.500	2003880.900	4"x 4" metal plate w/wire	20"	
R10-19	244721.539	2003823.695	No Find	48+	Deeper than 4'
R10-110	244711.200	2003848.500	½"x 30" steel rod	24"	
R10-39	244709.698	2003863.549	¼" x 12" wire scrap	36"	
R10-126	244699.500	2003850.300	16" Fence Post	24"	

Anomaly ID #	Easting	Northing	Item	Depth	Remarks
R9-156	244660.546	2003869.597	12" metal rod	26"	
R9-114	244633.054	2003915.038	Metal scrap	24"	
R9-29	244614.562	2003884.165	Practice AT Mine	36"	M12 series practice no hazards
R9-69	244649.537	2003884.800	Metal scrap	24"	
R9-167	244620.000	2003882.700	Metal pipe	24"	
R9-145	244619.400	2003885.100	Fence post metal scrap	36"	
R8-14	244599.574	2003906.778	3"x 24" angle iron	30"	
R8-60	244596.623	2003883.589	Deeper than 4"	48+"	Abandon dig due to water
R8-40	244580.641	2003899.172	24" I-Beam	36"	
R8-58	244571.674	2003887.519	Corroded metal	48"	Not OE
R6-7	244484.614	2003893.658	Deeper than 4"	48+"	Abandon dig due to water
R6-17	244473.966	2003884.081	Deeper than 4"	48+"	Abandon dig due to water
R6-24	244469.686	2003880.566	Deeper than 4"	48+"	Abandon dig due to water
R6-28	244459.871	2003882.877	Deeper than 4"	48+"	Abandon dig due to water
R6-19	244443.475	2003887.906	Deeper than 4"	48+"	Abandon dig due to water
R6-14	244443.000	2003885.000	Deeper than 4"	48+"	Abandon dig due to water
R4-21	244301.100	2003834.700	Large metal item	36"	Left in Place
R4-20	244297.800	2003823.900	Item deeper than 4	48+	
R4-9	244284.300	2003824.500	2"x 24" pipe	36"	
R3-1	244192.411	2003758.953	7' railroad rail	36"	Left in place
R3-4	244238.388	2003776.963	Aluminum Foil	24"	4MV response
R3-7	244241.213	2003779.495	No find		5MV response
R2-2	244119.798	2003713.238	Multiple wires and steel rods	48"	Possible lobster trap
R1-14	244093.200	2003681.400	Aluminum trash	16"	
B1-3	246973.200	2004297.300	Old hot water heater	24"	Left in place
B1-4	246965.700	2004286.500	Wire Scrap and small glass bottle	18"	Held bottle for lab test
B4-1	247135.229	2004331.500	Large shackle ¾"	18"	
B5-23	247192.500	2004351.600	Table knife, metal scrap	18"	
B5-36	247193.100	2004350.700	Metal Scrap	18"	
B5-8	247194.300	2004356.400	2-vehicle tie rods and 2- empty propane cylinders (camp stove)	20"	

Anomaly ID #	Easting	Northing	Item	Depth	Remarks
B5-7	247192.800	2004355.500	corrugated steel (14")	18"	
B5-10	247200.795	2004342.133	16" dia auger anchor and tire rim	36"	Auger anchor left in place
B6-17	247263.406	2004343.819	1" x18' Iron bar	18"	
B6-23	247229.493	2004339.665	Wire scrap	24"	
B6-5			Metal Rail	48"+	
B6-16	247279.500	2004339.000	Metal plate	36"	
B6-6	247268.893	2004337.087	Steel mat piece	36"	
B7-15	247313.553	2004321.596	Deeper than 48"	48+	Abandoned dig due to water
B8-4	247370.100	2004338.700	Heavy Metal Rod	30"	
B8-3	247344.516	2004343.749	10" x 24" Manifold	36"	
B9-11	247448.400	2004321.900			No find
B10-1	247507.262	2004306.020	Deeper than 4'	48"+	Abandoned due to flooding
B11-5	247582.863	2004277.244	Deeper than 4'	48"+	Abandoned due to flooding
B12-6	247618.243	2004254.859	Deeper than 4'	48"+	Abandoned due to flooding
B13-11	247674.437	2004284.238	Machete blade and can	36"	
B14-7	247739.160	2004234.540	Wire scrap	20"	

Attachment C- Site Photos



Photo 1- Non-MEC Scrap Recovered at Red Beach



Photo 2 Shackle recovered at Blue Beach



Photo 3- Practice mine recovered at Red Beach



Photo 4- Non MEC Scrap recovered at Blue Beach



Photo 5- EOD Team snorkeling at Blue Beach



Photo 6 Water seeping into hole at Red Beach



Photo 7- Metal I-Beam recovered at Red Beach



Photo 8- Small vial recovered at Red Beach

Attachment D

Letter From EPA dated 4/30/03



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

APR 30 2003

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Sam D. Hamilton
U.S. Department of the Interior (DOI)
Regional Director
Southeast Region
USFWS
1875 Century Blvd
Atlanta, GA 30345

Re: Atlantic Fleet Weapons Training Facility (AFWTF) - EPA I.D.# PRD980536221
Munitions and Explosives of Concern (MEC) Investigation Report for Blue
Beach and Red Beaches

Dear Mr. Hamilton:

The United States Environmental Protection Agency (EPA) Region 2 has reviewed the April 2003 "Final Draft Preliminary Munitions and Explosives of Concern (MEC) Investigation Report for Red and Blue Beaches" (the Report). Blue and Red Beaches are located in the Eastern Maneuver Area of Vieques Island. As you know, based on preliminary comments on the Report provided to the Navy and DOI by EPA, as well as by the Puerto Rico Environmental Quality Board (EQB), the Navy implemented additional MEC Investigation work at Blue and Red beaches between April 26 through April 29, 2003.

Based on the results of that additional MEC Investigation work, EPA concurs with the Navy's and DOI's recommendations that Blue and Red beaches can be opened for recreational usage. Our concurrence is based on:

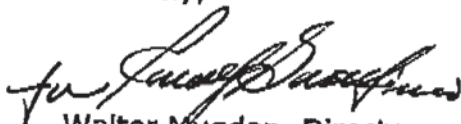
- a) the largely negative findings [only 1 clearly military item found, and it was wholly inert] during the "reacquisition" to 4 feet below ground surface of 30% of the geophysically identified anomalies that, based on the previous "reacquisition," were determined to be deeper than 1 foot below ground surface;
- b) the wholly negative findings of the underwater visual inspection by divers for any possible sea-bottom MEC related surface items in the waters to approximately 4 - 5 foot depth; and

- c) Implementation of access restrictions [and warning signs] for the uninvestigated areas behind the beach.

However, access restrictions should be maintained for the land areas behind the beaches, pending implementation of additional MEC investigations of those areas.

If you have any questions, please telephone either Mr. Carlos Ramos, of Region 2's Office of the Regional Administrator, at (212) 637 - 3588, or Mr. Tim Gordon, EPA's designated Project Coordinator for the RCRA Order, at (212) 637 - 4167.

Sincerely,



Walter Mugdan, Director
Division of Environmental Planning and Protection

cc: Captain John R. Warnecke, Commanding Officer, U.S. Naval Station
Roosevelt Roads
Christopher T. Penny, Naval Facilities Engineering Command
John Seymour, U.S. Department of the Interior [via Fax]
Shelly Hall, U.S. Department of the Interior [via Fax]
Bud Oliviera, U.S. Department of the Interior, Fish & Wildlife Service [via
Fax]
Felix Lopez, U.S. Department of the Interior, Fish & Wildlife Service [via Fax]
Esteban Mujica-Cotto, President, PR Environmental Quality Board (PREQB)
Yarissa Martinez, Office of the Chairman, PREQB [via Fax]

Attachment E
Attendance List

May 1, 2003

Ben Redmond LANTDIV/CH2M HILL 865 384-5511 bredmond@ch2m.com
 CHRISTOPHER T. PENNY LANTDIV 757-322-4815
 Cal GARNETT DOI/FWS Atlanta 404-678-7164 cal-garnett@fws.gov
 ROBERT WING USEPA REGION 2 212-637-4332 wing@BOB@EPA.GOV
 Byron Brant LANTDIV CODE EV24 (757) 322-4786 brantb@efollant.navy.mil
 Chris Penny " " (757) 322-4815 cpenny@efollant.navy.mil
 YARISSA MARTINEZ PREQB (757) 305-8573 yamartinez@jag.gobio.pr
 Paul Yaroschuk Dept of Navy 703-588-6695
 Jim PASTORICK GEOPHEXUXO, LTD. 703 548-5300 JIM@GEOPHEXUXO.COM
 George R. Overby CH2M HILL 756 539 6405 goverby@CH2M.com
 DOUG MADDOX US EPA HQ 703 603 0087 MADDOX.D@EPA.GOV
 CARLOS R. RAMOS USEPA REGION 2 (212) 637-3588 ramos.carlos@EPA.GOV
 TIM GORDON USEPA Region 2 212-637-4167 GORDON.TIMOTHY@EPA.GOV
 John Tomik CH2M HILL 757-460-7274 jtomik@ch2m.com